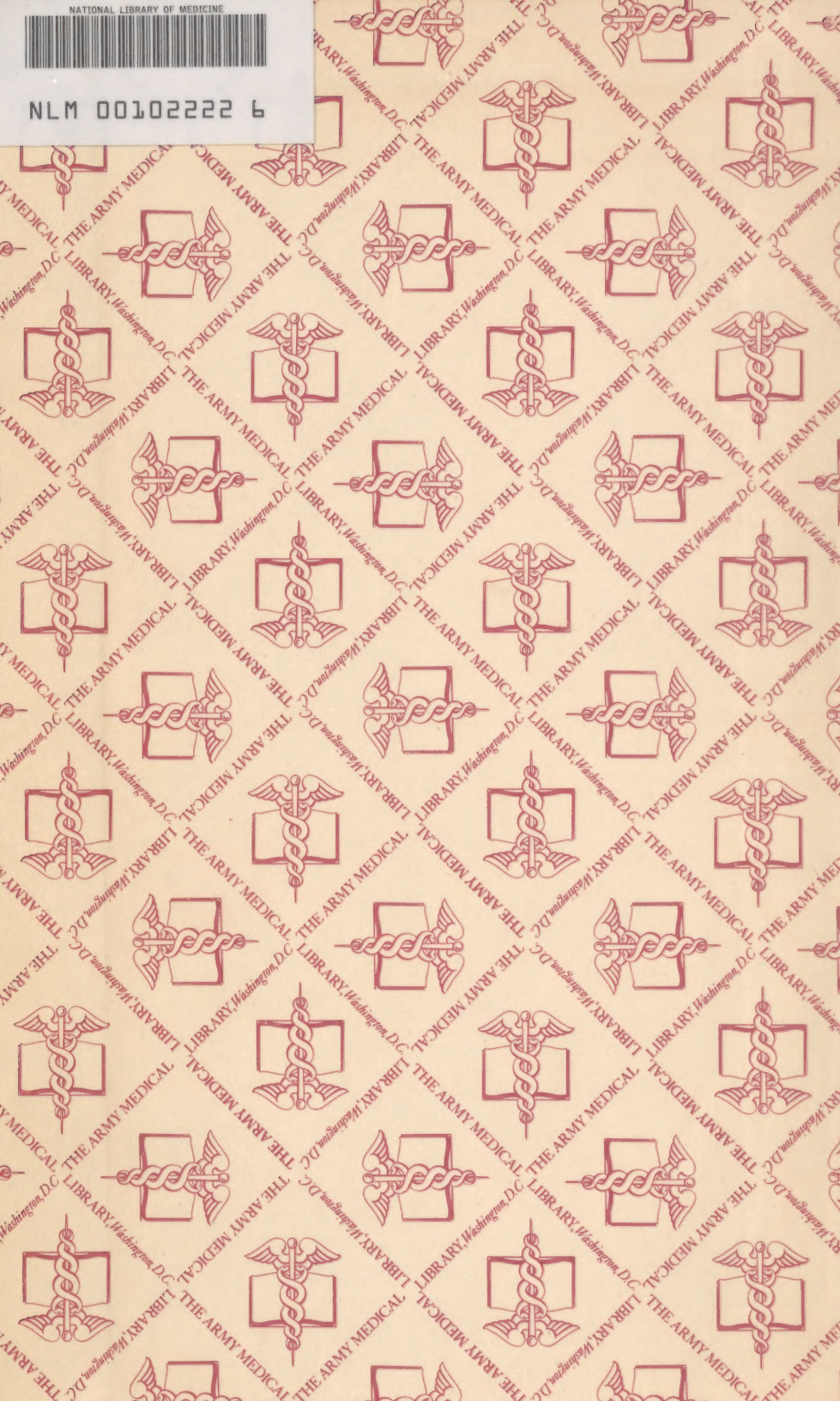
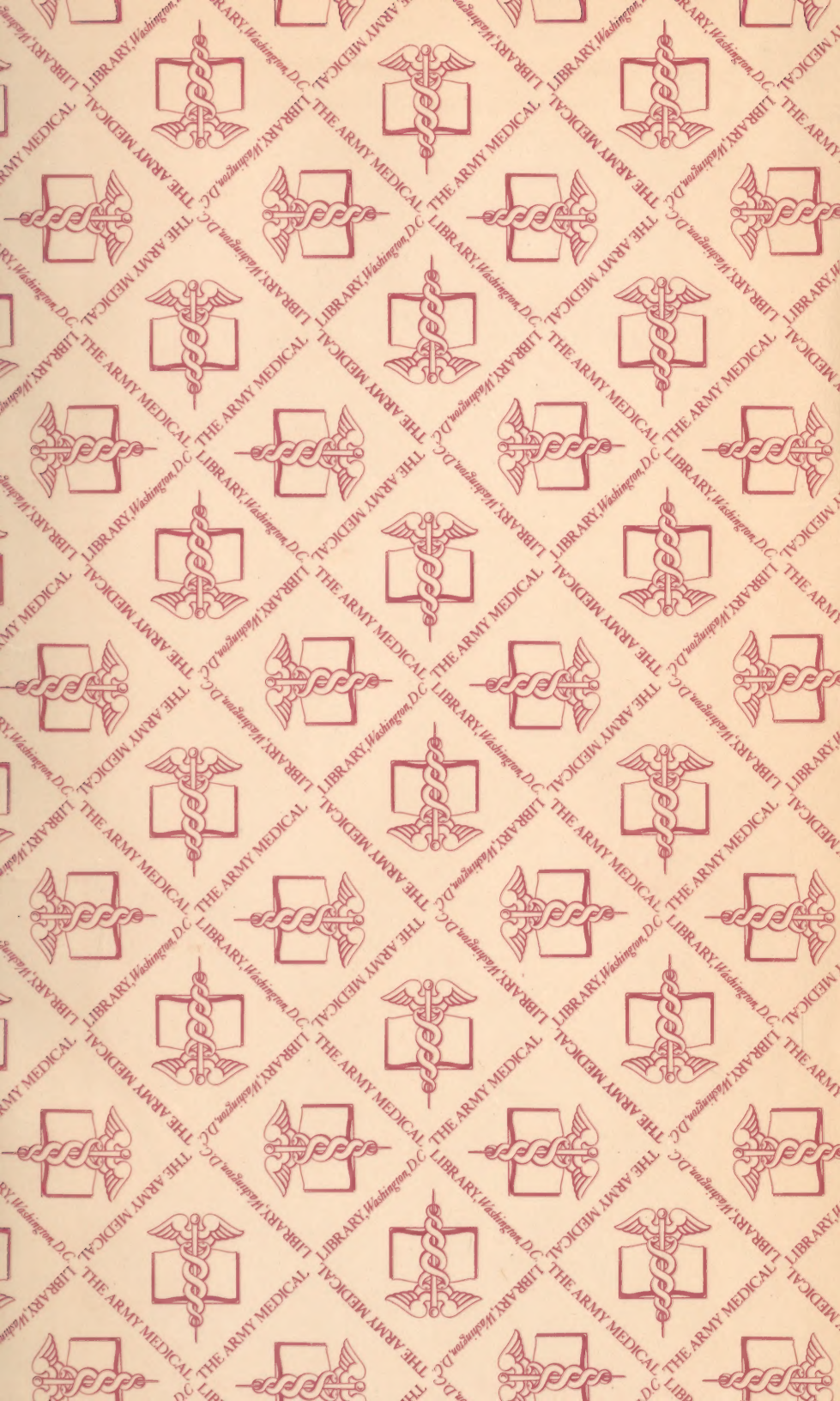




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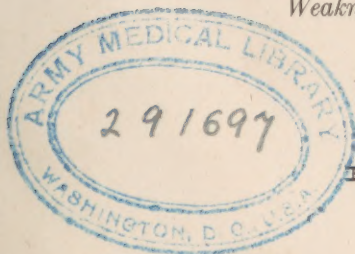
THE
FAMILY PHYSICIAN,
AND
DOMESTIC PRACTICE OF
MEDICINE,

BY

JOHN BUCHANAN, M.D., D.C.L., L.L.D.,

PROFESSOR OF PRACTICE OF MEDICINE AND PATHOLOGY,

And Author of "The American Practice of Medicine;" "Buchanan's Obstetrics;" "The Centennial Practice of Medicine;" "The Child, its Diseases;" "A Systematic Treatise on Midwifery, and Diseases of Women and Children;" "The Principles and Practice of Surgery;" "The Venereal Disease;" "Spermatorrhœa, Our National Weakness;" "New Remedies," etc.



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Annex

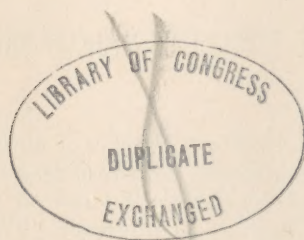
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Dedication.

TO R. R. HURFF, M. D.,

In token of her many Scientific Attainments, the high regard entertained for the brilliant powers of her mind, and in grateful acknowledgment of many acts of kindness from the generous sentiments of her noble heart,

These Pages are Respectfully Inscribed.

THE AUTHOR.



PUBLISHER'S PREFACE.

THE Publisher commits this work to the people, believing that it will greatly assist them in the management of their own diseases and that of the family, and earnestly hopes that it will prove a valuable work of reference. Domestic Practices are inevitable in this progressive, travelling, colonizing age, not only as works of reference, but of great value in quickening the medical appetite so as to secure more appropriate means to preserve human health.

The author is a practitioner of forty years' standing, of most extensive experience, an author of great versatility, a Professor in the most celebrated universities of Europe and America, and thoroughly conversant with the wants of the people in their search after health. He also has made many important discoveries in the art of medicine invaluable to mankind, and no one understands more thoroughly the true nature of our people, their idiosyncrasies, their diseases, and best means to be adopted in their cure.

The ripe experience, the devotion and zeal, which the author has brought to contribute to the production of this work will stamp his name upon the annals of medical literature, art and progress with a fame that can never dim or die; for art and literature live forever; our politicians reign for a day, and retire to obscurity; our men of wealth build palaces, and hold banquets, and control great financial interests, and go down in disaster; our men of society court the various powerful material interests of the world, and rejoice in their patronage for a season, and then disappear like the ephemera of the twilight; but art and literature live forever; if a man add to these treasures he adds to the permanent possessions of the nation; navies, armaments, wealth, are at the mercy of war; literature is independent of disaster, nay, is only enriched by it—it feeds on all forms and phases of the national life, and grows as steadily and surely in adversity as in prosperity; and all those who pour out their lives in literature are the true national benefactors to be cherished, protected, encouraged, fully and freely recognized; they are the kings, queens, and nobles of a realm which is above the accidents of political empires—the producers of treasures which cannot decay:

The present work is imperatively demanded. The progress of the age; the spirit of the times; the eager, keen, grasping

PUBLISHER'S PREFACE.

medical appetite; the present revolution in the medical world; the inauguration and elucidation of the germ theory of disease.

It has received the highest commendations, the heartiest approval, of all liberal practitioners. Physicians of all schools have endorsed the treatment laid down; the appliances and remedies selected and recommended, as the best and safest, on which the greatest reliance can be placed.

It contains no sentiment that will, in the least, militate or conflict with any ennobling effort to alleviate human suffering, prolong life, or produce a nobler type of manhood.

The spirit of the work is reflected on its every page; principles are inculcated that tend to make the mind purer and the heart better; a more rational treatment of disease is laid down, based upon good common sense; all the landmarks and milestones between disease and death are plainly marked out, and all curative measures based upon a renewal of life.

It sets forth in vivid light a rational system of cure; constructive treatment; the duties of nurse and physician; the necessity of a universal dissemination of medical knowledge among the masses.

A perusal of the table of contents will show that it embraces a description of over *Seven Hundred Diseases*, with their treatment, thus forming a perfect Encyclopædia of *Domestic Medicine*.

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INTRODUCTION.

THE PRESENT WORK is designed as a manual for families in cases of emergency, when the ordinary family physician's services cannot be promptly obtained. It will be obvious to the reader that it is written in the plainest language, and everything like prolixity has been avoided, the whole object of the author being to instruct the reader in a knowledge of disease. There has been no divergence from this point. The general land-marks of a good, common-sense treatment of disease are laid down, devoid of all technicalities and clap-trap.

The question will be asked, what kind of Practice is it? We answer, simply an American, for we regard medicine as an inexact science, whose object is to mitigate human suffering, and aid in the prolongation of life. We recognize no creed, or system, or cure, or pathy, or ism in medicine; it is a unit, a whole, like other sciences; it recognizes disease as a deficiency of life, and takes hold of everything as curative that aids in its removal. Medicine has a true benign spirit—seeks and absorbs all knowledge, every kind of means or appliance to aid nature in the cure of disease.

Medical science in our country has suffered a tremendous degradation. A physician does not command the honor and respect that is awarded him in other countries; neither is he the recipient of brilliant rewards, nor does his talent, however great, engender that warm recognition and appreciation. This is due, in a great measure, to the systems, cures, pathies, and isms that have been permitted to grow, like poisonous weeds, and have received the countenance of a portion of the profession. It is due also to the quality and calibre of the graduates that have been turned out, one-half of whom are a burlesque on knowledge, science, and truth. It is due to a pretended divinity in medicine, and to its arrogant subdivision into sects, or so-called schools, got up by rogues, knaves, and illiterate men who never received a medical education, but simply took to medicine, and became its ostensible teachers because they could not earn a livelihood at their trade. It is due also to the fact that noted charlatans all over the country own medical schools, publish trashy journals, and turn out biannually ignorant gradu-

ates to prey upon the community; men and women who know nothing of disease or its cure, or the action of drugs. This medical disgrace, or odium, or stigma has been fostered, fed and kept alive by a corrupt, avaricious medical press, for the sake of the cash paid for their advertisements.

Times are changing, and the people are beginning to look upon those ignorant charlatans with disgust. In no country in the world do we need a higher grade of medical education than in our own. We practice among a non-indigenous race of people, mixed races, living and often blending together, each having their own diseases, or creating, or aggravating, or intensifying all grades of morbid action, the management of which requires greater skill, keener penetration, and higher scientific attainments in the physician, and in spite of all this, medical education is at its lowest ebb. Indeed, there is only one or two schools in which a first-class education can be procured. As a rule medical teachers are utterly incompetent.

From the highest to the lowest, the base effrontery of the charlatan is either directly or indirectly patronized, and to some extent believed in. The serpent is warmed, fed, and nourished by the orthodox, and he turns round and stings them. Charlatanry should be crushed, nay, stamped out, and educated men should divest science of its mystery and show to the world that medicine is not a science that admits of inspiration or specifics, and that the practice of the healing art is not one that can be acquired by the unlearned. There can be no specific or system, or cure, or charm, or nostrum, or sugar globule, or specific tincture known to the true physician; his calling consists solely in the rational study and treatment of disease on common-sense principles.

A true, just, and truthful conception of medical science must bar the recognition of systems or cures of any class or description. The art of healing is not a sect or system, and never can be made one. It is simply an intelligent common-sense application of the laws of health, the proper adaptation of remedies to aid nature to a renewal of life in disease. The symptoms and pathology of a malady are studied, with a view to the acquisition of precise knowledge as to its nature, cause, and rational treatment. In our investigation of disease, we travel over the boundary line of death and explore the cadaver to ascertain the effect of the morbid state on the organism, and to elicit the organic causes. We test the powers, analyze the properties of drugs, and we scrutinize and make careful trial of methods of treatment, to obtain an accurate acquaintance with their nature and action. In short, we adopt every means to render the principles and practice of our art rational. This is our duty; we do not give any countenance to humbug

triturations, specific medication, sugar-globulism in medicine, as they are frauds; nothing in them. We have no friendliness to quacks, charlatans; we believe in sincerity and truth; we hate humbug in all its forms, and detest wrong and untruthfulness.

We have no friendship for the Nihilist in Medicine, nor for the pathist, or the ism, or the layer-on of hands, or the inspired. We have a profound contempt for such. Out of the eighty thousand physicians in these States, one-half are unmitigated frauds or impostors and consist of botch barbers, reporters, carpenters, coal operatives, swindlers; uneducated asses, vipers, living on the credulity of the people. Those charlatans not only do a great injustice to themselves, but injure the entire profession of which they seek to become members, although they are mere fungi or excrescences.

Designations, as implying the adoption of special modes of treatment, are simply trade-marks for gain, and are opposed to the dignity of the profession. What educated man can talk with a fool who argues that a grain is, for potency, nothing, but the decillionth part of a grain is dangerously powerful? Specific medication is a bastard of the above monstrosity; a discreditable and absurd dogma—trade-marks, by which infamous scoundrels catch trade, patronage, and above all, fill their avaricious pockets. They hold to it like so many vultures, because it pays. Those charlatans will blow and brag, introduce speculums and uterine sounds, massage the uterus, coin new names for maladies, invent new fashions and maltreat their patients, and by their diabolical villainy they even confound and mix up drugs, by manufacturing new names, as essential tinctures, specific tinctures, concentrated tinctures, mother tinctures—all creations of their own puny, brains—a mercenary scheme to swindle the profession.

Medical matters, so degraded and mixed up, could easily be rectified by the enactment of a United States registration law, for the protection of the lives and health of the people, in which systems should be unknown; a board of examiners to consist exclusively of naval surgeons, in each State; all physicians under twenty years' practice to be examined in medicine, surgery, and midwifery; under ten years, in all the branches; the diplomas of all schools to be ignored, no questions, even, asked, as to whether he is a graduate or not—the test to be ability, irrespective of any worthless document. In this way the entire country can be thoroughly purged of the reptiles that are now so prolific, and all inferior schools stamped out for want of patronage. Much good could be effected by medical journals refusing the advertisements of all charlatan institutions, and by the drug trade utterly prohibiting the sale of their nefarious

remedies. One energetic movement, and the medical profession of this country can at once elevate itself to the same rank and status as that of other civilized nations.

* * * * *

As this work treats exclusively of the diseases of the Caucasian, it may be necessary to make a few remarks upon the subject of races, as our government is an anomaly on the earth, in so far as we have an older, distinct, and highly inferior race voting with and engaged in ruling a superior. Besides, the very fact of a distinct race living in close proximity deteriorates both, and aggravates with profound intensity all contagious diseases passing from the one to the other. The subject is of vital importance to us as a nation—this blending or mingling of races. Medical men are afraid either to write or speak on the subject—afraid of persecution, afraid of not being popular; but we boldly assert it that there is no educated physician in this or any other country who can believe in the unity of the human species. That there is also a far higher antiquity to some races of men than what is recorded in the Mosaic record. Indeed, it can be easily demonstrated that man existed centuries before Adam. But although this is the case it in no way contradicts the inspired word.

There are distinct races of men; the living witnesses are before us in the Mongolian, the Negro, the Malay, the Indo-American, and the Caucasian—essentially different types of mankind; different in color, organism, construction, physiognomy, and blood. Besides the difference in complexion and physiognomy there is a marked variance in their anatomical and physiological structure, an incomparable, impassable difference in bones, brain, nerves, senses, vessels, glands, and in language, which latter alone, when considered, makes a distinction, a perfect line of demarkation, so that neither race can be traced to a common source or origin. One group or family of languages form a class known as the *inflectional*, and are distinguished from all others on the globe as the only languages that are adapted to and possess a literature, a science, art, progress. This is the property of the Caucasian, the sole civilizing race in the world, and was doubtless taught to him in the Garden of Eden. The other groups of languages are monosyllabic, and are destitute of all grammar; the nouns have no number, declension or cases, and the verbs are without conjugations, moods, tenses or persons.

The variety of races is no mystery; each is a separate, distinct creation, for a gradation of species is absurd and inconsistent. A changing, a negation, an amalgamation, is death and extinction to all concerned in the effort; a change from black to white an absolute impossibility.

We have abundant evidence to show that the different races existed four thousand years ago, as distinct as they are to-day; accurate likenesses on monuments and other historical evidences are prolific and available on the subject. Incontrovertible evidences—geological, archeological, philological, physiological, psychological, anatomical, and historical—all tend to establish the proposition, that of all the distinct races of men which are now and which have been on the earth from time immemorial, and inhabited its respective sections, the Caucasian was the last to make his appearance—a masterpiece of creative mechanism, made out of God himself. The record of Moses does not in any way contradict the existence of other races before Adam. All attempts to trace the different races in a degradation from Noah result in glaring failure. It is well known that both the Chinese and African nations existed centuries before Adam.

There can be little doubt but that the intermarriage of the Adamite daughters with the adjoining races was the real cause of the flood. God foresaw the terrible results of incompatibility of races—that the stock produced was inferior to either of the mingling parents—derogatory to the welfare of His people, and would tend to extermination.

The Bible should be regarded as the history of a particular race—the Adamite. His création, his fall, his restoration to paradise, are the themes of holy writ. Salvation is proclaimed to the heathen by faith in Christ, and as it is free and bountiful enough, other races are permitted to participate in its benefits.

Truth, in whatever department of science it appears, cannot be contradictory of Revelation. There oftentimes may be an apparent antagonism, but it is not real. When they are not reconcilable either Revelation or science is misunderstood. The word of divine truth stands sure. Scientists may err, but the ultimate deductions that we, the Adamites, are to infer, are, that the mixture of races does not produce a true, hybrid condition, but something analogous to it. It degrades the bioplasm of both races concerned, by producing stock highly tubercular; so much so that it will inevitably terminate in the utter extinction of any given race concerned or implicated, and as the mixture of races was the cause of the flood, so it will, if persisted in by our people and government, infallibly produce a condition of national decadence and ultimate annihilation of all the parties. Words fail to express the supereminent degradation inflicted on any race by a deterioration of its original properties, its organic elements.

If space permitted, we could easily show a perfect distinction of races in other points, as construction, craniological develop-

ment, difference in bones, senses, etc., and their perfect incompatibility. We have an excellent national example in Mexico, where we have the noble Spaniard coupling with the aboriginal Indian, giving us a race much inferior to either of the mingling parents; a race that must inevitably die out.

Marriage, to give a good stock, must be consummated within the race. And marriage among the Caucasians of individuals of the same temperament, identical in color of hair, skin, eyes, conformation; or persons related by consanguinity, should be prohibited by law, as they entail on their offspring tubercular, an element of deterioration and death within the races. Still, with all a morbid race cannot be established in the true sense of the term, for the evil cures itself by non-procreation. No sensible deterioration in size, beauty of form or expression, can take place, for the moment the boundary line is reached the evil cures itself in non-procreation, so that the caucasian to-day is a perfect fac-simile of our prototype, Adam.

* It seems to be a difficult matter to get the hide-bound, or so-called orthodox Christians to appreciate the essential difference of races, but as they are distinct in their anatomy, so are they different in all other attributes; their sympathetic systems are imperfectly developed; that is, it exists in a more rudimentary condition; consequently, they are incapable of taking on the diseases of the white man. It is impossible for them to take yellow fever, acute laryngitis, pneumonia, carditis, typhoid fever, &c., and if it is true that the soul of the Caucasian is located in his great sympathetic, and his moral nature there developed, where could there be a more decided element of disparity of race. The very senses and their organs are different, being more highly developed in the colored race than in the white.

This distinction of race comes home to us most strikingly in the aggravation of the types of all our diseases, when two or three dissimilar races are living in close proximity. Suppose the child of white parents contracts measles, scarlatina, small-pox, from the convalescing child of the negro or mongolian; the so contracted disease, even though of a mild form in the colored, will become virulent and malignant in the white, and vice versa. Let a white man contract a gonorrhœa from a colored woman, and he has something that no known drug will stamp out for months or years. The fact of two antagonistic races residing in close proximity is detrimental to the prosperity, health, happiness, longevity, and freedom from disease of either race.

* * * * *

All physiologists and naturalists agree in asserting that the sexual instinct is much stronger in the male than in the

female, so this fact must be accepted. In countries in which women keep their normal sphere, the number of male births exceed the female by five or six per cent. But that represents the children born alive, if we take the miscarriages and still-born, the male rate exceeds the female forty or fifty per cent.

The germ cell, or female, transmits the form and general hereditary qualities of a race, while the sperm cell, or male, introduces the variations which fit the race to survive under new conditions of life, the sex being determined by the greater vigor and maturity, or greater fitness for survival in either parent. Where the ordinary conditions of life are uniform and constant, the germ cell will predominate and females be produced in excess; where women leave their sphere and take on the strong-minded element the offspring are all females; where the conditions of life are variable or injurious to the race, the acquired vigor in the struggle for existence, the sperm cell will predominate, and an excess of males be the result. In the civilized condition the two sexes are of equal value, inclining to the side of the male, provided each keeps its proper sphere. Austria and Great Britain afford us an example in which the two sexes are on an equal footing or basis, and we find on examination of their birthrate, that there are born one hundred and ten males to one hundred females, which shows an absolute excess of male births, and this excess occurs at the earliest and most vigorous portion of married life.

The sex rate, also, seems to be largely dependent on the relative maturity of the parents, as well as their vigor, the more mature parent being the most potent in determining the sex; the sex being the same as the most mature parent. The following figures exhibit the proportion of male births in one hundred females:

Father younger than the mother,		90
Father and mother of equal age,		94
Father older by one to six years,		103
Father older by eleven to sixteen years,		147
Father older by eighteen or more,		175

As females attain to maturity five years earlier than males, it is probable, from the above table, that with a difference of age of five years in favor of the father, the two sexes would be about equal.

The hereditary physical and mental qualities are transmitted by the female, and that variation and adaptability to new conditions of life are introduced by the male; we do not wish to imply that the germ cell is not modified by external conditions, but only that it is subject to fewer causes of variation—that it possesses a strong inherent disposition to resist change, and that it will be destroyed rather than accommodate

itself to any marked changes in the condition of life. It is most tenacious of vitality, indeed we see the female embryo resisting violence of all kinds, action of drastic drugs and constitutional taints in the parents, living in spite of danger and disease.

From statistics of the two countries mentioned (for our own are not reliable, being full of the strong-minded element, which by and by will render us a nation of girls) it is probable that the proportion of births, marriage being properly regulated by age, should be the proportion of three males to two females, and this number would be a typical family, which would admit of the sacrifice, not necessarily the destruction of one male, to accommodate the race to the ever changing condition of life, and to assure the constant accession of fresh vigor and maturity. The wealthy, living under the most favorable conditions of good living, of natural and sanitary surroundings, no struggle, have the two sexes equal, females slightly predominating. In embryonic and infantile life, boys do not possess near the vitality of girls, which may account for the unusual destruction of males at birth, their heads are larger and the diseases incidental to childhood always proves more fatal to male than female children. Races being distinct creations, are antagonistic to each other, so to preserve the vigor and vital integrity of a given race, its members must marry within it, for if they mix with other races, they implant deterioration, disease, and death on their offspring.

Individual members of the Caucasian race must maintain and utilize their vigor, and in order to do that should not marry one of similar temperament and physique, nor in similar conditions of life: a literary man never should marry a literary woman, nor a tailor a seamstress. Cross fertilization within the race produces the best stock. There should be no *in* and *in* breeding in temperament, nor in similar conditions of life, far less than among blood relationship.

There is a growing error in the public mind on maturity. It is a great error to suppose that puberty in either sex is a sign of fitness for marriage. Growth and reproduction cannot go on beneficially together, reproduction being a diversion of growth or development in a new direction, namely, from the individual to the race. Men do not cease to grow until they are twenty-five, women till they are twenty-one, according to the good or bad nurture they receive, the best nourished attaining maturity first. It is obvious that those ages are the very earliest that marriage should be consummated, and, indeed, the father should be much older, if male children are desired. The best way of increasing the male births is to keep women in their proper sphere and direct our energies to the preservation of males at birth. This has been done to some extent by

the grand improvements in the art of midwifery, but the mischief lies in the disproportionate size of the head of the male fetus and the mother's pelvis, which has been constricted by dress, tight lacing and abnormal mental culture. For the curve of the sacrum and crook of the coccyx is a true index of the mental culture of the mother; the higher the one the greater the other. It is impossible to estimate the great loss the race sustains in superior and mental qualities by this unnecessary destruction of its finest products.

At birth, in children born alive at full period, the average length of male infants is nineteen and one-half inches, and of females eighteen and one-quarter inches; while their average weights are: males, seven and one-half pounds; females, six and one-half pounds. The waste of male children, owing to the large size of their heads and the contracted condition of the modern civilized female pelvis is immense. The remedy for this is apparent, and to be found in direct improved development of the girl's physical education and dress, an avoidance of the defects of civilization and a more careful guarding of the sexes in marriage.

The average stature of the American woman is five feet two inches to five feet three inches, and of man five feet seven inches to five feet eight inches. The difference between the two sexes being four or five inches; and as stature carries with it other relative proportions of the body, it is probable that if these limits were observed all through the scale of heights there would be fewer male still births. It was at one time thought that the intellectual struggle going on caused an increased development of the brain in children and consequently larger heads in male children, but this has been found to be erroneous, for ever since the introduction of woman's rights movement the heads of boys and consequently men have become notoriously small, and the male children of such women effeminate, so that the recent impetus given to the so-called education of girls and the employment of women in intellectual pursuits is adding to the difficulty, and if it does not end by producing sterility, as is probable, or in the birth of female children only, which is still more probable, it must at least tend to the destruction, more and more, of males at birth. It is obvious that whether we consider the health and happiness of the individual or the future prosperity of the race, that the healthy physical development of girls is of first and supreme importance. The boy is father of the man, the girl is the mother of the race, for to her is entrusted the hereditary characteristics of our forefathers. She has the means of transmitting them and indirectly of acclimating and accommodating the race to new and varying conditions of life.

The reproduction of characteristics resembling those of the father in the son, is in a large measure effected through the agency of the female where there is a strong affection on the part of the mother for her husband; his likeness, physical and mental is impressed on the son through the agency of the mothers' psychic force. The feeling, impulse or sentiment which pervades the mind of the mother controls and influences the development of the child. Peculiarities of feature and form that impress her powerfully, whether with admiration or abhorrence are reproduced in the offspring, and if her mental conditions be particularly strong, the impression may be transmitted in exaggerated intensity. These things happen in male children, which are specially the mother's. The likeness which female children bear to the male parent is the direct effect of reproduction in kind. The maternal influences are less evident in a female than in a male offspring. Perhaps a good view to take of the subject would be the following: sex is the result of an arrest or repression of the force of development in the case of the female. The male of every family in the animal kingdom is the best and fullest specimen of development, having regard to the purposes and habits of life of the species, class or family. The arrest in point of development which characterizes the female, has nothing in common with immaturity, and is no proof of inferiority. It is simply a repression of the formative force, and the physical result of that repression is a perpetual effort to develop or reproduce. The force arrested in the individual gathers intensity and expresses itself in a perpetual and characteristic longing to produce a perfect animal. The perfection denied or inhibited in the individual is sought for in the progeny. Hence, the natural tendency of the female to produce male children, and as a necessary result most of the children born are males.

It is not a question of ardency in the two sexes, but of the direction or force of intention or purpose of nature, that is the inner working of natural laws. The tendency of what is called ardency in the performance of this function is to neutralize or control the productive force of the female, and thus determine that arrest of development which results in female offspring. Here, again, there is no question as to the comparative amount of ardency in the two sexes, because the ardency of the male may be dissipated by the extent of its activity so as to be in no instance dominant, or it may be restrained or intensified, and, therefore, when it acts, assert supremacy.

The way constitutional strength comes into play, as it undoubtedly does in sex determination, is by giving vigor to the natural action of natural laws, not by changing the operation of these laws, so as to make them non-natural. Through-

out the organic kingdom, we see nature preserving and developing the germ cell, while on the other hand, we are constantly reminded of her lavish production and apparent wastefulness of sperm cells.

The function of the male is not one of production, but fecundation. The laws governing the development of monsters are laws of development, rather than of procreation, and they come into play after conception. The natural tendency of the female is, if she does not exhaust her brain force, to produce male children in excess, and, as a result, when mothers live properly a large percentage of the children born are males, but let the child-bearing mother exhaust her mental powers as a teacher, preacher, astronomer, or other literary avocations, her children will be all females, and if there should occasionally be males, they will be effeminate, have small heads and feeble brains, and resemble girls in their actions. Woman may be more perfect in her anatomical construction than man, but her great sympathetic is merely rudimentary, so she needs a man to complete her component parts. The practice of women engaging in literary pursuits and learned professions is well enough, if they maintain celibacy; but if they ever marry and bear children, then they are sapping and deteriorating the elements of national growth and vigor.

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Pathology is a term of frequent occurrence in the pages on diseases proper, and necessitates an explanation. Physiology is the science of healthy organic life; pathology, the science of the unhealthy or abnormal course of life contrasted with the normal. The division of vital action into normal and abnormal is superficially true, but it cannot stand as a definition for the practical science of pathology, nor is it of value in treating diseases. We know that the changes that take place in bones in youth and old age, and also in cartilage, lung, brain and other parts are in harmony with the dictates of nature, and are no more unnatural or pathological than the yellow leaf that falls from the oak in autumn, but if these senile changes are premature, then they are morbid or pathological. A premature decay that brings the organism to an end is morbid—it may be general or operate upon one organ alone. The pathologist regards the body with its physiological relations with its surroundings, and marks the alterations that time produces. The physiologist appreciates the law of gain and loss, and regards the destructive process, as well as the formation. Life seems to depend upon changes going on in the atmosphere in which all living bodies are steeped—the burning of the fuel in oxygen supplies the forces necessary for living processes; we, therefore, though alive, are being con-

stantly consumed. During so many years the body is undergoing combustion or slow destruction, and this process occurs much more rapidly in some countries, than in others, and in some animals more than in others. An American burns out sooner or lives faster than his aboriginal in Britain. Why one creature should live longer, or burn out sooner than another is not clear; why, for example, should a dog be worn out in ten or twelve years, its limbs be stiff, its hearing impaired, its intellect obtuse and senile changes be discoverable in its brain and elsewhere, when a parrot may take a century for the production of the same destructive changes? Why the tissues of the same composition, should wear out in one animal in ten revolutions of the earth, when it takes a hundred in another to destroy similar ones is not apparent. In man, if the destructive and reproductive changes are normally counter-balanced, the ordinary duration of life is reached. If the balance is not kept, the destructive forces may be in the ascendancy, and life may be shortened. If any of the ordinary surroundings, which are always exerting their influence upon us, as various kinds of food, air, water, moral and mental moods, be in any way depressing or noxious, they may lead to premature death. Besides irregularities, inequalities and excesses are diseases of our own infliction. Truly man is surrounded by influences that tend to destroy him—forces within and without—agencies working to destruction, but there is a wonderful innate law of reparation.

The law of acclimation, planting a race on a soil, and rendering it homogeneous is a wonderful faculty of the Caucasian and his adaptation to all its conditions and healthy relations between them. The surroundings of highly civilized society and life acts with undue proportion in the production of disease.

A very large number of diseases are due to the degradation of the living matter of our own bodies, the influence of depressed vital force, the influence of surroundings or of a specific character. Specific diseases are thus produced, besides often due to micro-organisms from other organic bodies. We also see in addition to those abnormalities the spectacle of one animal preying upon another as in the case of the trichinae.

There is a remarkable analogy in the origin or cause of disease in plants, animals and man, affording a rich mine of scientific research still unexplored.

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There is much truth in the law of reflex emanations of vital force becoming like each other when in close contact; of the strong imparting their vigor to the feeble, etc. In the use of physiology as a part of the science of medicine, we utterly

repudiate such, tricks and heresies as those of mesmerism or the fantasies of clairvoyance.

In viewing the subject, we, for the sake of convenience, divide man's nerve centres into three distinct brains, the cerebrum proper, the cerebellum medulla oblongata and spinal, and the great sympathetic. The principal ramification of the latter is over the viscera in the abdomen, the organs of chest and face. It is in the Great Sympathetic that the soul or moral nature of man's emotions, desires, affections, passions is located. Its principal ramification is over the spleen, left kidney, urinary and generative organs, viscera, heart, lower lobe of right lung, larynx, and face. There is a lack of development of the great sympathetic in most women, hence their passions, though apparently strong, are evanescent, and they have a total exemption of such affections as acute carditis and laryngitis, idiopathic inflammation of brain, and are incapable of exercising the function of psychology. To be a good physician he must be a good psychologist, that is, understand the inner nature, heart and soul, of the patient. Whatever may be the casual relations existing between mind and body, the mental part is not less real than the material and it plays an equally realistic part in the production and cure of disease; in the eradication of constitutional morbid states and resistance to or assimilation of remedies. The practitioner who ignores the mind in his study of disease or disregards it in his plan of treatment would be throwing away his means and power. The healing art never could survive the sacrifice of the unseen, yet perceptible side of humanity in the sick chamber. Man, as an animal, is the physical outcome of protoplasm; as an immortal being, the outcome of Deity. The Caucasian man is identified by his moral nature or visceral brain which is but rudimentary in other races. This is strictly true as dissections can demonstrate.

If emotions spring from the great sympathetic, as no doubt they do, a pathology of that must form an integral part of medicine. To ignore its phenomena in disease would be to lose our best symptoms, as the psychological conditions are often strongly marked. A physician must have knowledge of the soul, he must feel with finer senses, other pulses, and measure heats and chills which no thermometer can gauge. Each year progress in science gives new strength to the position and defines with increasing accuracy the place of the physician in advance of the dry and soulless philosophy which is accepted as scientific medicine.

The body and soul are inalienable; so in health, so in disease. The mental phenomena of life are the direct effect or reflexes of the physical state.

Of the mysterious something that makes man more than an animal, science knows nothing. If man's moral nature be the outcome of that portion of his nervous system reflected on the viscera it is affected by the manner and object of their exercise and it reacts on the viscera from which it springs with a force and intensity due to the outer sphere in which it operates. It follows that the entire sphere of the spiritual must be recognized by the physician in his dealings with the mental and physical constitution of man as a whole. In other words, the whole range of psychology must be embraced in practical medicine.

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There is a great hue and cry made by certain members of the profession throughout the entire country of a deterioration of race, of a national weakness, a nation of girls, the survival of the unfittest, and that there are causes at work that are sapping our vitals as a nation. In several parts of the present work we have shown that there can be no real vital deterioration of a race, because when that takes place procreation ceases, and we have the strongest evidence in making the statement, that the modern white lady that to-day walks our streets is a perfect facsimile of Mother Eve in size, beauty of form and expression, and all are familiar with the fact that a mixture of the colored and white race does not produce a hybrid condition, but something analogous in the production of a lower race essentially tubercular which inevitably dies out, so that the mixed race fails to be perpetuated. We see also the effects of strong-minded women in the production of a race of girls or extremely effeminate boys with all the rudimentary condition of women.

The cry of national weakness in the white race is said to arise from causes operating within the race, and to be identified with civilization and early precocity and affect both sexes alike, and is said to originate in self-abuse, sexual excesses, leakages and other states incidental to the increasing activities of the age. It is also maintained, and with great correctness, that the vigor, courage, magnanimity of a race bears a direct ratio to the strength and power of the generative organs. A true index of a nation's position in the scale may be estimated by her effeminacy, feebleness, cowardice, imbecility, or by her sturdy bellicose attitude. National examples are numerous; the ancient Greeks and Romans went to a miserable decay by sexual excesses. The decay and decrepitude of the Turkish power is solely due to sexual exhaustion. The French in 1870 exhibited a nation prostrate through sensuality and vice, and the sturdy, vigorous German gobbled them up in their might. The prowess of the Russians is proverbial, among whom sexual excesses are rare.

In our late civil war the soldiers of the armies of both North and South exhibited daring, courage, physical endurance, bravery and noble heroism unequalled in the history of the world, which does not exhibit any national weakness. It may be urged that our troops were principally foreigners; that cannot be said of our Western, Eastern and Southern forces, who were the most reliable, bravest, and exhibited deeds of daring equal to the noble Roman, to whom they bear a striking resemblance. The same condition may be traced down to individuals, to families. Illegitimate children were usually endowed with great genius and valor. Both ancient and modern history teems with examples. This is attributed to the vigor and impetuosity of both parents. Hercules, Romulus, Alexander the Great, William the Conqueror, Homer, &c., and many modern names could be mentioned that were bastards. The greatest captains, best wits, most brilliant scholars, bravest spirits have been base born; more noble in mind and body from the vehemence and force of their parents.

National and sexual vigor co-exist, the former depending upon the latter. But there are causes of national weakness produced by seminal losses to be found in masturbation, sensuality, gonorrhœa, stricture, occupations, fiction-reading, schools, isolation of the sexes, solitary confinement, vice and immorality, &c., &c. The most prevalent of the causes is masturbation, with its sequel, spermatorrhœa or loss of semen. This is an evil very difficult to guard against, save, warning and great vigilance, for there is no circumstance conceivable in which a young person may not fall into it. In the family circle, public and private schools, boarding academies, charitable colleges, the secret is taught and learned. Even children of very tender years have been brought to their grave by this inveterate, unsuspected habit in both sexes, and it is difficult for parents to realize the fact, that they so young can resort to such a practice. The ignorant manipulation of nurses often work the ruin of children at the breast.

Self-pollution is that detestable practice by which persons of either sex may defile their own bodies in secrecy and endeavor to produce for themselves those sensations which nature has appended to the communion of the sexes. The practice has been coeval with the world's history, and has been the most certain and immediate avenue to destruction in both nations and individuals—it is simply a lingering mode of death, lingering and imperceptible but always effective. It is not only unnatural, filthy, odious and monstrous, but in its consequences ruinous, destroys affections, perverts natural desires and extinguishes all hopes of posterity.

The causes that give rise to masturbation exist within the

body itself, in a kind of precocity of sexual instinct which is fanned into existence by stimulating diet, by permitting females to sleep with little boys, by the presence of female teachers in the public schools, which is a monster cause, together with other defects of civilization, dime novels, &c.

The isolation of the sexes in youth or more mature years is a grave mistake; the sameness of sex, like isolation or solitary confinement wipes out the typical characteristics of intelligence in the brain, causes a coalescence of the typical fissures, and produces a deviation from the normal type which carries its victim into sensuality and masturbation.

This vice invades all ranks; besides our schools and churches, our educational system is a source of intolerable mischief as well as the reading matter of the young.

But suppose the young man escapes this terrible vice and contracts gonorrhœa, gleet, stricture, syphilis or other condition. The venereal germ is very noxious to the genital organs, liable to render them weak besides contaminating the springs of life and breaking down the vigor of youth. Very apt to give rise to disease of the testicles, prostate, disorders of the rectum, and thus engender a leakage.

In married life there are various conditions, as excess, incompatibility, that give rise to leakages in nature. Injuries on the head, horseback exercise and other conditions weaken the vital integrity of the organs.

The end of all is in every instance losses, leakages of the nerve vital fluid. This may occur in various ways, discharge of semen during the night or day; by the urine, or at stool, or by a slight oozing or humidity all the time.

In the loss of seminal fluid, the material of impregnation, the human being parts with a portion of life itself, and even each act of natural coition, under the most favorable circumstances involves a degree of absolute exhaustion from which the system requires time to recover, but how fearfully debilitating it is when there is an oozing all the time. The human semen is a vital fluid, loaded with spermatozoa, floating in a prostatic secretion, endowed with the property of imparting life to a future man or woman. The spermatozoa are numerous, active, restless in a healthy man; few, sluggish, non-vitalizing in those who have abused their power or been guilty of the practices enumerated. The elaboration of the spermatozoa is guided by inscrutable power, and forms a stage in the interminable cycle of eternity that under favorable conditions develops itself into the likeness of omnipotence.

A continual drain or loss, scanty or excessive leads to prostration, debility, human weakness, lost manhood, poverty of mental power, engenders suicidal mania and crime, and en-

feebles the physical constitution and demoralizes the springs of action.

If any city or town can aggregate together a sufficient number to constitute a quarter per cent. of males thus affected then such a place must be branded as suffering from this so-called national weakness. To the uninitiated we will give an average description of a victim, one of the hundreds of young men that are turned out annually by the great manufactory of the solitary vice, Girard College. Hideous and frightful is the stamp that nature affixes to one of that class. He is like a withered rose, a tree withered in its bud, or a wandering corpse. All energy, animation and life are killed by this secret cause and nothing is left but weakness, inactivity and inertia, wasting of the body, stunting of the growth and depression of the mind. The senses are impaired, the eye loses its lustre and brilliancy, they sink in their sockets, he needs glasses; strength vanishes, manliness is extinct; honest courage is gone; features are sneakish; youth departs, the whole body becomes sickly and morbidly sensitive; very nervous, and muscular power is lost; sleep brings no refreshment, no energy, no recuperation; the joints are stiff and need lubrication, every movement is lethargic; the feet refuse to carry the body, the hands tremble, pains are felt in the limbs. There is usually indigestion, flatulence, and pains in the stomach are constant. The activity of the mind is destroyed only for mean contrivances; wit, genius and intellect have sunk below mediocrity, all good tastes, lofty ideas are vitiated and his mind is filled with anxiety, despair, secret reproaches, distressing feelings and cunning craftiness. The dreadful experience of a living death renders death a desirable consummation, for waste of that which gives life produces disgust and weariness of life and leads to suicidal mania, which is one of the characteristics of this vice. The whole life is vitiated, the body shrivelled and wasted and destitute of a soul. If he lives he is a pest to his associates, an eating cancer in the body politic, a parasite that afflicts man at large.

Every man in our midst should consult an eminent physician as to his bodily integrity and as to the point whether diurnal or nocturnal losses are taking place, so as to wipe out this condition, and the vice manufactories should be closed.

There can be no doubt that this national weakness is somewhat widespread. We meet with isolated cases of it in almost every family; it would seem to be endemic in some towns while others were comparatively free from it. Occupations seem to predispose to it, the life of a farmer is healthy, but usually monotonous, and this latter condition gives rise to it; hence, insanity as the sequel is more common among farmers than merchants; the in-door life and solitary existence of women

render them also obnoxious to it. Some chemicals act injuriously, hence photographers are great sufferers from the character of the articles they employ. All sedentary occupations are bad. It is a condition that should attract all the attention of the philanthropist; rouse all the eloquence and force of the clergy; and awaken the inner nature of man to grapple with, suppress, and exhibit the tremendous evils arising therefrom. Every lover of his species should see to the extermination of this great curse.

We grant the point that there does exist to a limited extent a *national weakness*, but so far it has not changed the American, it has not made him more puny and faint-hearted than of yore, it has not increased a vitiated progeny, nor so far rendered us less able to bear the struggle for existence and against disease. Measurements of the crania of ancient Greece and those of our Bostonian Athens show that we have bigger heads, more prowess and endurance, more real vigor, or grit, live longer and resist the ravages of epidemics better than our ancestors.

Again, if we take the boys, the offspring of literary mothers with small heads, or those raised in the institutions mentioned, whose brains become dwarfed by isolation, they have small mental capacity, and this very state leads them into the depraved habit of self-abuse which in their case arises from an undue development of the genital over the volitional and intellectual propensity or of the ganglionic over the cerebro-spinal impetus, then our outlook for the future would be gloomy indeed. It is well for our country's good that women of giant intellect rarely marry, or if they do, fail to live in conjugal felicity and are not blessed with offspring, and the puny, sickly dwarfs raised in charitable institutions rarely can procreate; so we are safe from those two elements of national deterioration.

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All animal and vegetable life begins in a cell or germ. Whether the germ is supplied by the spermatozoa of the male or ovum of the female, or by a conjunction or union, is not essential for our purpose. The primordial germ is endowed potentially with the capacity for forming all the structures of varying character of which the fully formed individual consists. Blood, skin, bone, hair, teeth, muscles, brain, each in its own place and proportion, to the definite extent as to give us a mature individual, exactly in size, weight, shape, color, &c., following the archetype of its race, but beyond this conformity in all its parts, it has impressed upon it and passes on to the individual made up of its successive generations to a remarkable extent, the physical and structural specialties of its parents. It is impossible to see in this germ of different animals any dis-

tion, still less in different human individuals. Yet such germ is distinct, through long generations and formations of organizations, and is capable of taking on more or less all the characteristics of its parents, not only in color of hair, eyes, shape, feature, but of temperament and quality of the organs into which its progenitor was originally invested, and some of the psychical endowments, its height and most exalted perfection. From the original germ, we have a proliferation of other germs, for every structure or tissue which are held in the blood, for in that fluid we have the initial elements or germs of all the tissues. These germ elements in the blood are called living matter or bioplasm, and are capable of being changed, altered, modified or degraded by certain adverse conditions within and without the individual, and when so degraded it becomes a disease germ. For example a change or a degradation of the living matter of ordinary nutrition is altered into a disease germ, *bacteria*; a modification or degradation of the living matter concerned in the nutrition of the respiratory mucous membrane gives the diseased germ *amæba*; an altering or degradation of the molecules or germs of nutrition of the nervous system, become the disease germ *vibrios*; a degradation or rot of all the living elements in the blood gives the disease germ *oidium albicans*; a degradation of the living matter concerned in the nutrition of the sexual organs by promiscuous sexual intercourse, gives us the syphilitic disease germ. A degradation of other living matter may give the disease germ cancer, tubercle, small pox, &c.

The germ theory of disease, then, may be briefly expressed in a sentence; the modification or degradation of living matter in the blood, by adverse conditions of life, into disease germs. This is the origin of all contagious or infectious diseases. The direct transplanting of disease germs may take place in innumerable ways, being most likely to take hold among those of depraved organizations, among persons who live poor, in crowded houses where vital forces dwindle, and organic elements are feeble; where hygiene is limited; insanitary surroundings very bad; where vital stamina is greatly impaired.

Although we make the following enumeration of disease germs, it must not be accepted as either correct or complete, because the subject is merely in an incipient stage of investigation and no precise classification can be made. But even this imperfect division may assist in the advancement of scientific truth, and I leave it with the reader till a more enlightened state of knowledge furnishes us with a better.

The *bacteria* is the most commonly met with of all disease germs, being present in great abundance in all states or degrees of mal-assimilation, in boils, erysipelas, wounds, inflammations.

Met with in the living fluids under nearly all pathological conditions. It is a sausage-shaped germ, sometimes occurring singly, but more frequently met with in longer or shorter strings like Jersey sausages, often jointed and linked. *Amoeba* are round or spherical bodies very pellucid, usually floating free, either singly or in groups or in bead-strings, always wherever found looking like an O, best seen in catarrh, bronchitis, chronic laryngitis, eustachian deafness, also found in the living blood in those diseases.

Vibrios resemble small feathers or yarrow leaf, strings or threads from a stem in constant motion. Found only in the blood in nervous diseases as chronic inflammation of brain or cord, softening, epilepsy, and is the main factor of typhoid fever, in which it is not only in the blood but in the urine, stools, sweat sordes, breath.

The *oidium albicans* looks like a field of tall prairie flowers; is found in the discharge of ozana, in the ulcers of aphthæ, in the false membrane or exudation of diphtheria; in gangrene, and in the blood in the same diseases, also in spotted fever.

The above four germs are found abundantly in the blood of animals, in a giant form; as for example the giant bacteria of cattle and fowl give rise to anthrax, the giant amoeba to glanders, &c.

Besides these there is found the *Brownian granules*, minute, opaque, solid, moving, spherical bodies, which exist normally in the buccal mucous cells and white corpuscles and in a diseased state in blood serum, milk melanotic matter and urine.

Micrococci are found in small-pox, and putrid fevers in the blood.

Spirilli are merely a species of vibrios, specially present in the blood in typhoid; bacilli are simply giant bacteria, there are several varieties, best seen in cattle plague or anthrax.

There is also the germ tuberculæ, cancer, syphilis, yellow and malarial fevers, scarlet fever, small pox, rabies, &c. The two first, tubercle and cancer have been well defined, but the latter are rather imperfectly delineated.

Germ spawn of all kinds, is a fine granular matter, spoken of as clouds of granular debris, which, though infinitesimally minute, has nevertheless specific pathological characters and is always visible in fluids where mature germs float. Although the spawn cannot be isolated, they are entirely indistinguishable from each other, they are nevertheless organically distinct.

It is not the mere presence of disease germs in the blood that gives rise to trouble, but their quantity that gives rise to disease. Their presence is always indicative of morbid action wherever met, but when in swarms the special disease that gives rise to them or they to it is paramount. There are some

germs that exercise a local influence, as glanders and rabies, before they enter the blood.

In animals, plants and vegetables we also meet with special disease germs when conditions adverse to vitality prevail, as the fruit, potato and vine blight; the epidemic cutaneous disease of the silk worm and salmon. It must not be supposed that we are acquainted with all the different species of diseased germs; the subject is only in its earliest development, and many more remains to be discovered. The point to be clear on is that their original formation is due to the living matter of our own or other bodies being degraded by some adverse condition into a disease germ. That when this takes place it acquires new and independent powers of existence, and acquires great, even marvelous powers of reproduction, both in and out of the body, provided a degree of warmth and moisture be present. That they are all contagious and infectious in the true sense of the term and their virulence is greatly aggravated if taken from an opposite race, or from animals. We see that well exemplified in the persistent retention of small pox in a most malignant form in localities where two opposite races live side by side. By the fatal effects of the giant bacteria among tanners, wool operatives; by the pernicious effects of tubercle from milk of diseased cows.

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The education of women and the engaging of married women in intellectual pursuits, thus producing all girls or very effeminate boys with small heads is very notorious, but there are other causes at work in the production of monstrosities, to be found chiefly in a perverted condition of the sense of the beautiful in women which illustrates the folly and childishness of the race, and is strikingly brought out in the Chinese crushing the feet of their female children to render them small; and by another race compressing the heads of infants between boards to flatten them; in another by tatooing the skin of the body; others color the skin, but the Caucasian woman possesses the most erroneous and perverted of all tastes, the most destructive to health, to her own happiness, namely, tight lacing. Wherever a white woman is found she adopts the practice.

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In no instance has the folly and perversity of women been more strikingly displayed than in the various efforts to render themselves beautiful. The most absurd and deleterious contrivances are resorted to for the purpose. Our ladies attach great importance to a white skin, which they secure by poisoning themselves with bismuth and arsenic; others put great faith in hair dyes and nearly all are infatuated with having a small waist; they place the greatest importance on this deform-

ity, this mischievous shape, the figure of a wasp and with great self-denial and extreme suffering laces up her corsets until her ribs actually press closely to her spinal column and the functions of vital organs in the chest and abdomen are not only impaired but organic disease is set up of the most incurable kind, and her future life is rendered one of great misery. The practice of tight-lacing is a violation of natural laws, and impedes the proper working of the lungs and heart; disturbs the circulation of blood, prevents its distribution to the brain. Its first action upon the lungs and liver is compression, on the former this prevents a proper aeration of the blood; on the latter prevents a decarbonizing or cleansing of the blood. Besides the pressing and squeezing of the corsets devitalizes and paralyzes all the muscles of the back and chest and renders them quite hideous in shape in advanced life.

In proportion as the lungs are impeded, so is the blood imperfectly oxygenized and aerated; this strikes right at the powers of life, rendering them feeble and rapidly affects the whole body in a general whitling down process, insufficient inflation, gives rise to hurried breathing and disease of the heart.

The liver and gall ducts suffer much from the compression as well as displacement, and the victim becomes afflicted with various forms of hepatic disease and gall stones. The stomach and bowels are not exempt from derangement, so there is indigestion, constipation.

But the uterus receives a terrible strain from the superincumbent pressure, which causes it to be displaced in all directions, downwards, backwards, forwards and sideways; painful menstruation follows. Very often the bowels are pressed down between the vagina and bladder or between the vagina and rectum or into the femoral ring, and thus rupture of an incurable form is brought about and when the lady marries and bears children, outraged nature gives her long and prodigious suffering in labor. Her pelvis is deformed and contracted, there is always less or more curvature of spine, and she suffers a living death. If mothers would only inculcate that in order to secure beauty, health must be first obtained. A perfect freedom of all organs, muscles, with their normal exercise, and activity, that there should be no restraint, no pressure to clog or impede.

Deity requires no artificial means to alter or increase the beauty and perfection of his work. A Caucasian woman is the most perfect piece of divine mechanism, and neither her beauty of form nor expression can be increased by tight lacing. No, but by the act she compresses her abdominal brain which controls the blood vessels, which guides the nutrition of the entire body. The pressure on the solar plexus gives rise to morbid

impressions in the brain proper, and she strangulates the store-house of vital force of her body, the fountain of supply. The importance of this region so constricted in containing the nerves of organic life never can be duly appreciated.

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The large proportion of the diseases of the human family are of their own production, due to the degradation of the living matter of our own and others bodies into contagious disease germs; others are the direct result of a violation of moral and divine law, and are capable of prevention. It is not necessary to point to the glaring gin palace, the secret brothel, the interments of the dead in cities, to sewerage, and other insanitary states, neither is it necessary to speak of bad food, deleterious trades, insufficient clothing, overcrowding, impure air and no bathing, nor to the various defects and vices of civilization as manufactories of disease, as they are apparent. Man is beautifully constructed and protected so as to resist the invasion of all outside contagious diseases: none of them can penetrate his skin unless it is cracked, and the mechanism of his nose is such that they cannot penetrate there, so that when not due to causes within the body of the individual there is only one mode of access, and that is by the mouth, and if it is kept closed man is invulnerable to *contagium vivum* from without. Nearly all contagious disease germs out of the body find their way into the blood through the salivary glands of the mouth, such as tubercle, cancer, small-pox, scarlatina, &c., &c.; if man were only to keep a close mouth, even if of feeble vital force he could live with immunity among malarial, yellow fever, typhoid, cholera and other germs. The great secret then aside from a high standard of vital force for the prevention of disease is *how to breathe*. Man should breathe exclusively by his nose in order to avoid all contagious disease germs. This is apparent from the following anatomical facts: The nasal chambers in man are remarkable for their irregularity of surface and anfractuosity and consequently for the enormous area of mucous membrane they present within a very limited cubic space. The greatest ingenuity has been displayed in the construction of the nasal fossa to give this immense surface without increasing bulk or weight. In pursuance of this principle all the bones about the nose are hollowed out and the chambers so formed that the so-called sinuses or channels of those are brought into direct communication with the nasal passages, and constitute supplementary air chambers or crypts, and every portion is utilized for its proper purpose. The entire surface of this extensive tract is covered with mucous membrane, remarkable for its vascularity and high nerve endowment. The upper or olfactory portion of the nasal surface proper, amounts to about one-

half of the whole, and this is provided with an epithelium composed of non-ciliated columnar particles interspersed with fusiform or olfactory cells, whilst the lower half, which is essentially respiratory, is furnished with a ciliated columnar epithelium, same as that which lines the upper surface of the bronchial tubes. Over this extensive tract supplemented by the accessory sinuses, the eighteen or twenty cubic inches of air which constitutes the volume of one inspiration passes and is dispersed in thin layers and fine streamlets. The air in this act of nasal respiration diffuses itself into the chambers and recesses and thus becomes heated to the temperature of the body, by coming in contact with the vascular lining. The greatest portion of the air that enters the lungs in ordinary nasal breathing is drawn from those chambers and recesses, after it has been heated. The inhaled air is supposed to take the sides and the expired air to occupy the centre. No doubt to some extent they mix and thus become vitiated, for the expired air is loaded with carbonic acid gas and is heavier than the lighter and static air lodged in the nasal cavities.

The initial portion of the nasal respiration is devoted to diffusion through the sinus and chambers, where it is raised in temperature, thoroughly cleaned before it is transmitted to the lungs, it is thus freed from disease germs, mechanical impurities, by a process of sifting which it undergoes by means of the cilia of the respiratory portion of the tract, where these extraneous elements become fixed by the abundant viscid mucus secreted in those passages. When such impurities are in excess as in the case of a miner, cotton operative, knife grinder, wool sorter, the natural protection is not sufficient and irritation and disease is the result. But under all ordinary circumstances the natural process is sufficient to catch or filter, or sift the breathed air from all disease germs. The crusts that form in the nose when not due to ulceration are the product of sifting, filtration and deposition.

The air inhaled through the nostrils is hygrometrically altered by coming in contact with moist mucous surface and thus becomes charged with a percentage of aqueous vapor inversely proportioned to its previous hygrometric condition. This effects a most salutary change in softening, mollifying a dry or parched atmosphere, such as we often experience in our violent wind currents.

The dry air if breathed into our lungs unchanged would cause too rapid evaporation from the lining surfaces of the bronchial tubes, lower their temperature inordinately and interfere with gaseous exchange within the lungs and give rise to asthma, bronchitis, and pneumonia.

The cavity of the mouth of man presents none of these ad-

vantages for breathing, indeed, it is not adapted for breathing at all. The mouth, the buccal and laryngeal portion of the pharynx are covered with stratified squamous epithelium and like all surfaces so provided are, by comparison with columnar and ciliated surfaces, lowly endowed with vascularity and sensibility. There are no sub-divisions in the mouth into chambers, recesses, sinuses. No multiplication of surfaces by projections and depressions of surfaces as in the nasal cavities. Hence a column of air breathed through the mouth is not searched, cleansed, sifted and filtered of foreign bodies, neither is it warmed and moistened as if breathed by the nose. The saliva will not impart vapor to the air passing through the mouth, not to any appreciable extent, neither does air furnish a reflex stimulus for the secretion of saliva. This is readily perceived in those who habitually sleep with their mouths open during the night in the dry, parched state of the mouth in the mornings. During the seven or eight hours of sleep with an open mouth, no stimulant other than air is applied to the incident or excitatory nerves of salivation, hence the parched state of the mouth. The inferences to be deduced then are: that the nasal passages are the natural channels for the entrance and exit of air, and if judiciously employed, they are as air passages adequate for the purpose of respiration and warding off disease. They are the natural channels for the introduction of air into the lungs and its expulsion therefrom. Their construction and organization are such as to keep man free from all contagious diseases. The preservation of the nose is of great importance; it should not be injured by snuff, smutty atmospheres and dust. The breathing through the nose is the best method of preventing asthma, bronchitis, pneumonia and consumption. The mouth and fauces are the natural passages for food, if used for breathing purposes there is great risk of disease. An open mouth is mischievous, it is a receptacle for all noxious germs, a closed mouth in breathing is a sure preventive of all diseases of the lungs as well as a proper safeguard against all living disease germs. Man can face the most deadly living poison with a closed mouth.

To guard against disease germs floating in the atmosphere, breathe exclusively by the nose; but it is very difficult to lay down rules for the prevention of the ingress of disease germs by local contact. It is impossible to say how cancer, syphilis, tuberculæ, small pox, typhoid fever, scarlatina, diphtheria, &c., can be restrained as these human pests can be communicated.

By living in close proximity, sleeping on the same bed, using the same blankets in a sleeping car, or the sheets or towels of a steamship, or hotel.

By wearing bathing suits, ball or funeral dresses hired out.

By drinking water, but especially milk, from a farm where those diseases exist, the use of cups, tumblers, spoons.

By the water in cars, by the use of water closets, car seats and hay.

By brush, comb, hats, dentists' tools or vaccination.

By handling ordinary articles as car straps, brooms.

By toys sold to children on the streets, the seller, probably syphilitic, tests the whistle in his mouth and hands it to a child who is at once contaminated, as the saliva of diseased persons is full of germs.

By the handling of books, cards, car tickets, canes, gloves, pipes, and specially by cigars, the makers of which may be diseased, and wet the wrappers with their saliva.

By kissing, in all ages.

Seeing that there are a thousand channels through which living contagion may reach man, it behooves all to eat the best of food, wear woollen clothes, and daily to cleanse off the entire body with a bath. To have a variation in diet, in exercise, in occupation, in amusement, as change is most conducive to a high state of mental and physical existence; as essential as pure air is to oxygenate the blood.

Personal health is as important to the community as to the individual. A nation of sick, or of infirm invalids, would quickly cease to be a nation at all. All sickness, all infirmity, entail a national loss, actual and definite, in consequence of which the nation is not only weaker but poorer. We do not properly appreciate the influence of disease on national prosperity, although we realize it in the individual. If our national rulers could only realize the extent to which it is impoverished by preventible disease,—rendered poorer by the loss of that wealth of which money is the token, they would soon devise means to wipe out glaring insanitary conditions and take measures to instruct the masses in sanitary science, so that each one would have a sound mind in a sound body.

The greatest possible amount of money spent by our government for efficient sanitary measures, will always prove an actual and great economy, and result in a saving of human life and an increase of national wealth.

Nothing is so costly as disease, excepting death; no waste is so extravagant as the waste of human life.

DIAGNOSIS.

HOW TO RECOGNIZE DISEASE.

In order to do this with certainty the patient should be examined according to a well-defined plan or order. The name, age, occupation, residence, temperament, previous history, sex, should be carefully noted, and then inspection, palpation, measurement, percussion, auscultation, pulse, tongue, skin, secretions, excretions, heart, respirations, &c., carefully noted. All interrogations should be put to the patient in plain language such as he can readily comprehend, in systematic order, so as to arrive at a precise knowledge as to what kind or nature of deviation from health has taken place; and, above all, in our examinations and manipulations we should never forget that we are learning the disease of a fellow-creature like ourselves, who possesses the same feelings and sensibilities. Prudence, delicacy and kindness should therefore guide our movements. The consulting-room of a physician should be as sacred as the confessional, never degraded into an engine of terror or extortion. There should be the strictest honesty of purpose, conduct pure and exalted, and everything called by its proper name, never overstated, never condescending to anything ignoble, never coining names for trifling maladies, or aggravating the type of a disease. Patients should not be maltreated by endless examinations, speculations, applications, and be drugged for years when nothing is the matter.

Disease is best studied between fifteen and forty-five. Diagnosis during that period is much aided by stability, perfect ossification, pulse, respirations, heart being steady and all the functions of the body up to a healthy standard.

INSPECTION.

Inspection of the general position of the patient in repose and in motion is often very suggestive. The position and attitude in fever and inflammation, in paralysis, hydrothorax, asthma, colic, and spasmodic diseases are highly characteristic. The recumbent posture on back indicates debility; quick forcible changes indicate excitement of the nervous system, while fixed or restrained movements are dependent on paralysis or inflammation.

Inspection of the countenance is of great importance, observing whether sadness, peevishness, despair, fear, joy, grief, or other emotional condition is evinced. The yellow color of

the skin in jaundice, its uriniferous aspect in Bright's disease, speak volumes; whereas its conformation tells us much, as the corrugation of the brows in pain of the head. Pain in the chest causes the nostrils to be drawn upward; in the abdomen the lips to be raised and stretched over the gums and teeth.

Inspection of the chest refers to the form and configuration of the entire thorax and its various parts, and a careful comparison of the two sides, whether in motion or at rest. The motions of the chest are referable to inspiration and expiration, which pass imperceptibly into each other. In disease these motions are altered in various ways. First, by excess or diminution, as in asthma and laryngeal obstruction. Second, by partial immobility as in pleurisy, or by augmented expansion as in pneumonia and pleurisy. Third, by increased rapidity as in pericarditis, or unusual slowness as in coma.

Inspection of the abdomen is no less important than that of the chest. In health it is slightly convex, marked by elevations and depressions corresponding to the muscles of its walls, the umbilicus, and prominences of the viscera below. It varies with age and sex: smooth and flat in the young; broader inferiorly in females than in males, from the greater width of the pelvis. In disease it may be enlarged generally and symmetrically, as in dropsies; partially or irregularly in ovarian, hepatic, splenic, and other diseases; it may be retracted from emaciation or intestinal obstruction. The respiratory movements of the abdomen bear a certain relation to those of the chest, and are increased or arrested with them. In pleurisy the respiratory movements are mostly abdominal: in peritonitis altogether thoracic. Disturbed relations of the respiratory movements of both abdomen and thorax are useful points in diagnosis in hydrothorax, asthma, ascites, abdominal tumors, &c.

PALPATION.

This is a valuable mode of examination, and is best practiced by simply pressing the tips of the fingers against the various parts. In some cases the whole hand or both hands are used. The most favorable position for palpation is the horizontal or erect. The information that palpation gives is: First, increased or diminished sensibility. Second, the altered form or shape, size, density, elasticity, &c., of the parts under examination. Third, the different kinds of movements to which they are subjected. Pain, if inflammatory, is increased on pressure; if neuralgic it is relieved. In paralysis, the diminution of sensibility can only be ascertained by feeling the part, and the limitation of the anæsthesia is best arrived at by pricking the surface. Alterations in size, form, density are often made out by palpation; a change in elasticity, hypertrophy,

or atrophy is also easily discoverable. Certain motions, as expansion, contraction, vibrations, frictions, grating, crepitation, are also determined by palpation. The natural fremitus or thrill perceptible on placing the hand on the chest when a person speaks, is increased or diminished in disease. Fluctuation is a sensation caused by tapping on or percussing parts in such a way as to cause an agitation or wave of their fluid contents.

MENSURATION.

This is another valuable mode of examination, and consists in measuring the distance between any two points by a graduated tape. For measuring either side of the chest or abdomen, a spinous process of the vertebræ should be selected as a fixed point, and the middle of the sternum or umbilicus for the other. The exact level of the measurement should be carefully noted and an allowance of from one and a half to two and a half inches made for the right side, or for the left if a left-handed individual, and in the case of a blacksmith even a little more. The pressure of the corsets in ladies enlarges the thoracic but diminishes the abdominal movements. In ascertaining the circular measurement of the chest and abdomen, the moment should be selected when the patient holds his breath at the time of an ordinary expiration, care being taken that the tape is carried evenly round the body.

Mensuration is valuable in detecting emphysema when the ribs bulge out; in hypertrophy of the heart; when the lungs are eaten away in phthisis; in enlargement of liver, spleen, and ovaries.

PERCUSSION.

Percussion is best performed by spreading the fingers of the left hand not too widely apart transversely across the ribs and tapping on them with the right,—the bare hand on the naked chest or some very thin intervening body, the patient either sitting or in the recumbent posture. The object is to ascertain the resistance and size of organs. The sounds elicited by percussion or beating arise from the vibrations occasioned in the solid texture of the organs percussed. The different density and elasticity of organs modify the number and continuance of the vibrations, and give rise to different sounds. For the sake of simplicity all the sounds obtained by percussion may be embraced under three heads, and these three sounds are dependent on the organs containing air, or on their containing fluid, or on their being formed out of dense solid tissue. These sounds or tones may be termed the *resonant*, *humoral*, and *parenchymatous*: resonant over organs that contain air, humoral

over organs that contain water, and a dull flat sound over solid organs. To become thoroughly familiar with these three sounds takes a little time and close attention. The sense of resistance is an important consideration in percussion; it bears a relation to the density of the object struck; thus firm and solid organs or textures suffer more resistance than the soft or elastic ones. The ribs and entire thorax of a child are very elastic; those of an adult when ossification is complete very unyielding.

Before percussing a person affected with disease, the operator should have a clear and accurate knowledge of the limits and intensity of clearness or resonance, or of dullness of the entire thoracic and abdominal viscera. For example, the lungs from top to bottom on both sides are resonant on percussion in health, reserving four square inches of dullness on the left side below the nipple for the heart and a variation at the base of the right lung for an enlarged liver, and of the left for an enlarged spleen, of an inch or more from the verge of the ribs. Over a healthy lung, then, there is perfect resonance; but suppose the lungs are invaded by tubercle, this diseased germ like all others selects the weakest parts for its deposit and growth, which in ordinary cases is the apex of the left lung, or the apexes of both lungs, depositing itself at the uppermost point and growing and being deposited from above downwards. In such a case there would be dullness more or less, and the intercostal movement of the ribs would be arrested. There is one exception to the above: if the patient was suffering from irritation of the liver, the branches of the eighth-pair of nerves that cover the upper lobe of the right lung might be so weakened as to permit passive congestion, and dullness on percussion would be found. This only happens when the integrity of that nerve is weakened and all the blood-vessels it supplies thereby relaxed. There is scarcely any stage of deposit of tubercle in the apexes of the lung that fails to be detected by percussion; whereas when inflammation takes place it almost invariably begins in the large aerating surface of the lower lobe of the right, which is abundantly supplied with the sympathetic nerve, and it may proceed up the same lung or pass over to the left. Perhaps the only exception to the rule of dullness at the base would be in the closing stage of melituria or diabetes, when tubercle is thrown out at the base. As a general rule, then, congestive consolidation, the result of inflammation, begins at base. In some cases of tuberculosis, right in the centre of a lobe weakened by some irritation there may be an encysted mass of tubercle as large or even larger than the closed fist, and both apex and base clear on percussion. This mass may remain, or it may die and be expectorated, leaving a chasm or cavity or cavern

in the lung, in which an undue resonance can be detected and mapped out. An undue resonance or a tympanitic sound may then be due to a cavity left vacant by expectorated tubercle, or it may be due to a dilatation of the air-cells into pouches, or to infiltration of air at the abrupt angles or corners of the lung which is present in emphysema. A lobe or an entire lung may ulcerate away in consumption, giving rise to this sound on percussion, in which case there would naturally be a collapse of the ribs, whereas in emphysema there would be more of a bulging.

Water may be effused into the cavity of the chest, the result of pleurisy, an obstruction about the heart, and can be readily ascertained by first percussing the chest of the patient when lying down, in which position the water, if there is any, in the cavity of the chest will gravitate to the back and the lungs will float, when the chest will be found clear from top to bottom; then sitting up, the dullness, if there is water, can be detected and its height marked.

The diagnosis of affections of the heart constitutes the most difficult in the art of medicine. Any increase or diminution in size can be readily appreciated and detected. Its size varies with the individual; four square inches or the size of the closed fist is reckoned normal, but in effusions from the pericardium which are so common in chronic rheumatism, the area of dullness is increased to a greater or less extent.

In hypertrophy there is often a vast increase, so much so that dullness is great; there is a bulging to a considerable extent. In percussing the solid organs like the liver, great care is necessary to carefully map out its boundaries: the superior margin is generally found from one to two inches above the margin of the ribs, while its inferior boundaries extend to a considerable distance. Variations in the size of the liver are great in our climate, extending from simple congestion, inflammation, induration, enlargement, abscess, hydatids, tumors, down to wasting or atrophy, and all can often be detected by percussion. In aggravated jaundice, as a symptom of organic disease of the liver, the increase or diminution in size of the organ will bear a proportion to the disease. If the gall-bladder is distended by bile or gall-stones, it is easily detected by percussion, and the dullness under the inferior margin of the liver, anteriorly and somewhat laterally, may be marked out. The size of the spleen is four inches long and three inches wide. In diseased states it is either enlarged or atrophied. In percussing this organ the patient should be on the right side. The sounds elicited on percussion of the stomach, bowels, bladder, are of great value in determining the size and position of other organs, as liver and spleen, also in locating tumors, and effusion of fluids. In dropsy of the

abdomen the swelling is equitable. On percussing the abdomen with fingers of the right hand with the fingers spread of the left, their points resting on the opposite side of the abdomen, patient standing, a wave, undulation or fluctuation, can be detected very easily, and if not satisfactory empty the bowels with oil, and put the patient in a recumbent posture; bowels being empty will float on the top of the water, as the water has gravitated to the back; then the standing posture should be again tried. A correct appreciation of the state of the bladder is also obtained by percussion. In percussing the kidneys turn patient over flat on the abdomen, so as to get a clear appreciation of the renal organs.

AUSCULTATION.

This consists in applying the ear directly through a stethoscope to the chest, abdomen, or other parts of the body, to listen to sounds or murmurs. Its object is to ascertain and appreciate sounds and their nature, and its utility is limited to the pulmonary and circulatory organs. Before resorting to this method of diagnosis, it is well to refresh the memory with what exists in health. If we place the ear over the larynx and trachea of a healthy adult male, we hear two sounds or noises, one accompanying inspiration, the other expiration: they are called the laryngeal and tracheal sounds or murmurs. Move the ear to the right or left of the sternum, and you will hear the same sounds, only diminished in intensity; these are now called the bronchial sounds or murmurs. Place the ear under the nipple of the right side and two fine murmurs will be detected, normal vesicular respiratory murmurs. Keep the ear at the same place and cause the patient to count one, two, three, and so on, and there will be a peculiar impetus or sound of the voice called pectoriloquy or bronchophony.

With regard to these healthy sounds, it must be borne in mind that vocal resonance originates in the larynx and diminishes or increases from the point or source of the sound, modified by the textures in transmitting it. In all morbid states of the lungs these natural sounds are altered and new or abnormal sounds are developed. The alterations of the natural sounds in diseased conditions may consist in their being increased, diminished, absent, or location changed; the most common change is in intensity, often stronger or weaker, indicating increased or diminished action. They may be altered in character, the sounds becoming harsh as in pneumonia, cavernous when a cavern exists in the lung in consumption, amphoric in pneumothorax. There may be also an alteration in position; that is, sounds which are natural to certain parts of the chest are heard distinctly at other places whereas in health

they were never detected. For instance, in pneumonia, bronchial or tubular breathing may be evident when only a vesicular murmur ought to exist.

The inspiration in health is three times as long as the expiration, but in certain diseased conditions this relation is altered or inverted. For all practical purposes all the abnormal sounds may be classed under three heads: First, rubbing or friction sounds. Second, moist rattles. Third, vibrating murmurs.

Besides these there may be whistling, blowing, cooing, rasping and other rales or rattles caused by different impediments, mechanical obstruction.

1. Rubbing or Friction Sound.—This is caused by an irritation, inflammation, an effusion of serum in serous membranes which elevates the membrane into little blebs or blisters the size of a pin-point or head of a pin. It is a condition that we find after death in irritation of the membranes of the brain, peritoneum, pericardium, and pleura. In acute pleurisy about four or five days from rigor it can be very distinctly heard immediately over the site or location of the stitch or catch. On putting the ear to the place, we hear a rubbing like two pieces of brown paper being rubbed against each other. In health the pleura of the lungs and the pleura of the ribs are smooth, silky, finely lubricated; but when a partial death takes place, this effusion occurs with other symptoms of inflammation: they become dry, rasping, grating, and we may hear any degree of friction noise. The sound may be altered in various ways; the stage of inflammation modifies it greatly. Although most distinct in pleurisy, we also hear it very finely in all forms of pericarditis.

2. Moist Rattles.—When serum, or mucus, or muco-purulent matter, or liquor sanguinis, or blood are effused into the bronchi, the air in the act of inspiration and expiration is forced down and then up through them, which causes a bubbling or rattling or crepitating which can be distinctly heard by the ear and often felt by the hand. A large number of names are applied to this, but in all cases there must be a fluid to the moist rattle, so fine in some cases as to be scarcely audible (crepitating); so coarse as to resemble a gurgling or splashing (cavernous); and between these two grades medical experts enumerate a large number of rales or rattles, as mucous, sub-mucous, sub-crepitating. For all practical purposes, just adhere to the term moist rattles. These are present in bronchitis, pneumonia, phthisis.

3. Dry, Vibrating Murmur.—The wheezing or vibrating murmur is chiefly brought about by an irritation of the nerves that supply the circular muscular fibres of the bronchi, causing a contraction. We have excellent examples in asthma, whoop-

ing cough, and emphysema, and in some cardiac diseases. There is a true condition of spasm, obstruction, loss of tone and elasticity in the bronchi, whereby the vibrations into which they are thrown by the column of air produce tones of an abnormal character. The murmur is usually dry, and the fineness or coarseness of the sound will depend on the calibre of the tube or tubes or cavity thrown into vibration. Murmurs may exist from a fine squeaking to a hoarse snoring.

THE HEART IN HEALTH AND DISEASE.

In placing the ear to the heart, we should pay attention to the impulse, to the character and rhythm of the sounds, to the place they are heard loudest, and the direction in which they are propagated.

First find the spot where the apex of the heart beats or strikes against the walls of the chest, then listen to the sounds; then place the ear two and one-half inches above, a little inward, and listen to the sounds there; in the first position, where the apex strikes the chest we have the systolic sound, and two and one-half inches above the diastolic sound.

There are two sounds, then, heard over the region of the heart. The first is dull, deep, more prolonged than the second, coincides with the shock of the apex of the heart against the thorax and immediately precedes the radial pulse; it has its maximum intensity over the apex of the heart below and inside of left nipple. The second sound is sharper, shorter, more superficial, has its maximum of intensity two and one-half inches above the other, and there is a gurgle in it. These sounds have received the names, systolic (contraction), and diastolic (dilatation), the former when the apex strikes the ribs in contracting, the other in opening to receive the blood. The two sounds are repeated in couples. First, there is the long dull sound, coinciding with the contraction of the heart. Second, there is a pause. Third, the short, sharp sound. Fourth, a longer pause; all of which correspond to one pulsation.

With the systolic (contraction) sound we have the striking of the apex against the chest-walls, then contraction of the ventricles, then rushing of the blood through the aortic orifices, followed by flapping of the auriculo-ventricular valves.

With the diastolic (dilating) sound, we have the rushing of the blood through the auriculo-ventricular valves and flapping together of the aortic valves.

In disease, there may be a modification of the sounds heard in health, or there may be new and abnormal sounds developed. The modifications of healthy sounds are variations in their seat, intensity, extent, character, and rhythm.

For example, the sounds may be heard at their maximum

intensity lower than the natural point in cases of dilated hypertrophy of the left ventricle, enlargement of the auricles, or tumors at the base depressing the organ. They may be higher, owing to some abnormal swelling, or more on one side than another by effusions of air or fluid into the pleural cavity, or tumors, aneurisms, deformity.

The intensity and extent of the sounds may be diminished in atrophy, in fatty heart, nervous insufficiency—when there is a pericardial effusion, concentric atrophy of left ventricle, or emphysema. The intensity and extent of the sounds are increased in cases of dilated hypertrophy, nervous palpitation, or when the adjacent parts of the lung are indurated by effusion in inflammation or tubercular deposit in phthisis. The character of the sounds may be clearer or duller than in health, according as the walls of the heart are thinner or thicker. The sounds are muffled in cases where effusion has taken place into the pericardium. Sometimes they are rough when due to inflammatory changes.

The frequency of pulsations varies in different affections. In certain diseased conditions the beats may be intermittent, or there may be pauses, or they may be irregular. There may be a variation in sound, an insufficiency of action, in other cases it may be irregular. There may be a variation in sound: a want of harmony in the occurrence of the two sounds, one faint the other tumultuous.

All the diseased sounds of the heart may be classed under two heads. First, friction murmurs. Second, blowing or vibrating murmurs. The friction-sounds are due to inflammation. The vibrating murmurs depend on some organic change, generally the result of inflammation. These murmurs vary in character from a general blowing or puff as if from the nozzle of a bellows (bellows murmur), whilst others are harsher, grating, or sawing, but all caused by diseased condition of the valves. Sometimes the valves do not close, and as a result the blood regurgitates through them; in some cases the valves are constricted, shriveled, indurated, roughened, calcareous. The diseased sounds may be single or double, and have their origin either in the auriculo-ventricular or arterial valves, or in both. These sounds often resemble musical notes; more or less resembling the cooing of a dove, singing, whistling; all depending upon some excessive narrowing of the orifices, perforation of the valves, irregularities in their margins, or exudations or deposits on their surface.

Not infrequently a soft systolic blowing is audible at the base of the heart, or over the carotids and deep jugular vein; sometimes it is continuous, resembling the humming of a top. These murmurs, which are so common in poor blood, are easily dis-

tinguished from valvular ones by being systolic, by their softness, and by their presence when the substance of the heart is imperfectly nourished. On listening over the arteries in the vicinity of the heart, the same sounds can be detected.

In peritonitis, the friction-sound is often heard, and sometimes a grating. Various sounds are heard in the bowels, &c.

Auscultation, percussion, and other means of diagnosis are not to be depended on alone; they are simply aids, modes, or means of reaching an end, and should be strengthened by observation of the pulse, tongue, skin, heat, temperament, urine, and other means of a definite character.

THE PULSE.

The pulse at birth averages 130 per minute. There is a gradual decline till puberty, when it reaches its permanent standard, from 75 to 80. From fifty-five years of age upwards there is a gradual decline, so that in old age it ranges about 60. In persons of a sanguine temperament it is about five or six faster than the bilious. In females it averages ten beats more than in males. The recumbent posture causes a lowering of the pulse of about eight or more beats per minute. The pulse being the sign of this or that disease, is also the sign of non-existence of special activities, of strength and weakness, of irritation and relaxation of certain tissues. The more frequent the pulse, the greater the heat: the more rapid the respiration, the weaker the patient.

Frequency is the characteristic of all fevers and inflammations.

In acute rheumatism, frequent but remarkably full.

In all acute inflammatory diseases, firm.

In all abdominal inflammations, small, wiry, and frequent.

In fevers proper, large and soft, or small and feeble, but frequent.

In aortic regurgitation, hammering.

In hemorrhage, jerking.

In old age and in all conditions of arterial degeneration, hard and incompressible.

In excitement, rapidity and shortness of stroke.

In all acute inflammations of the brain, remarkable for its great frequency.

In cerebral disease, very unequal and depressed.

If there is pressure on the brain, slow and labored.

In disease of the heart, irregular.

In aortic regurgitation, although hammering, it is remarkably faint and feeble.

In syncope and cholera, imperceptible.

In all conditions of prostration, more or less faint.

When disease affects origin of subclavian, pulse only found on one side.

In all conditions of depressed vital force, frequent, unless there exists some mechanical impediment like emphysema.

Pauses in the pulse, or an intermittent, pulse, depend either upon disease of the brain or heart.

Pauses in the pulse, still not quite intermitting are often present in the users of tobacco, the nicotine affecting base of the brain.

THE TONGUE.

The tongue is an excellent index of the state of the stomach and bowels; it often indicates the state of blood and brain.

A heavy white coat, with or without elevated papillæ, gastric derangement.

A brown coat in centre and white at sides, derangement of stomach and liver.

A very dark brown, gingerbread, or even a liquorice aspect, malignant bilious fever, or typhus.

A charcoal hue at root indicates blood-poisoning.

A fur on tongue, catarrh of the stomach.

Transverse fissures on the tongue, intestinal irritation.

Longitudinal tracks, irritation of the kidneys.

Sharp-pointed tongue, nervous irritation.

A large flabby tongue, glandular disease.

A smooth raw-beef tongue, acute inflammation of the stomach.

Red tip and edges, sharp-pointed, with white coat, or fur or other coat in centre, chronic inflammation of the stomach.

A large, flabby, tremulous, creamy tongue, delirium tremens.

Tremulous, and patient thrusts or darts it out, in chorea.

Buff coat, like new leather, very dry, sharp-pointed, or it may be patchy, or papillæ elevated, typhoid fever.

Peculiar buff leather appearance in enteritis.

Thick coating, white or brown, mal-assimilation. Aphthæ, or ulceration in patches, mal-nutrition very great, so as to cause degradation of healthy living matter into micro-organisms; if very patchy the irritation may be deep.

Strawberry tongue, perhaps surface slightly coated in streaks, papillæ projecting greatly, is characteristic of scarlatina.

In hysteria, tongue often morbidly red, moist, with or without a coat.

The tongue is shining, glazed, or chapped in ulceration of the bowels. Warts on edges near root indicative of syphilis.

Tongue drawn to one side, effusion upon base of the brain of the opposite side. Red like a piece of raw beef, with a dark hue at the root, gastro-peritonitis.

THE SKIN.

Heat and cold alternately in the entire skin or a part of it indicates nervous depression.

Peculiarly thin and easily raised from the subcutaneous tissue in consumption and wasting diseases.

A feeling of fullness and tension in the eruptive fevers, amounting to even a sense of hardness in erysipelas, and a gritty feel in smallpox.

The nails are clubbed, and hair falls off, in tubercular disease. Loss of hair is common in the convalescing from fevers and in syphilis.

The skin is dry, harsh, in children suffering from tubercular disease.

Remarkably moist, soft, doughy in delirium tremens.

Perspiration is sour in rheumatism, also in diseases attendant on mal-assimilation; an excessive perspiration of any kind may be accompanied with small blisters on the skin, sudamina.

Profuse drenching or colliquative sweats indicate great debility or exhaustion, as in lung-consumption or profuse suppuration.

A rigor or chill indicates nervous depression, and either foreshadows a fever or formation of an abscess.

Rigor, with the cutis anserina or plucked-goose skin, denotes the presence of the malarial micro-organisms irritating the microscopical nerves of the skin, causing the muscles to contract in two different directions, thus creating a puckering.

Rigor occurring during the progress of inflammation indicates the formation of pus.

The crackling feel of emphysema is very characteristic, as is also the doughy character and pitting under pressure of anasarca.

Protuberant eyeballs, wasting disease.

THE APPETITE.

Becomes excessive in diabetes.

Craving in mesenteric disease. When intestinal worms are present, variable and capricious.

In hysteria or anæmia of spinal cord, morbid, craving chalk or other alkaline substances.

In pregnancy, very fanciful, longing for articles of food usually abnormal.

In dyspepsia, variously altered.

THIRST.

A central origin in the brain or medulla must be assigned to thirst analogous to the sensation of want of breath, or air hunger. The sensation is peripheral, due to the excitation of nerves in mouth and throat, which pass from the centre.

In diabetes it is remarkably increased.

In cholera very urgent.

In diarrhœa, urgent but less so than in cholera.

Diuresis with uncommon thirst, when there is no sugar in the urine, generally due to anæmia of cord or hysteria; not attended with hunger, urine of very low specific gravity.

Generally increased in all fevers.

ALTERATIONS OF COLOR.

In anæmia the skin is remarkable for its paleness; in chlorosis for its greenness.

In dropsy, from albuminuria, the skin is not only pale but white.

In nervous irritation, often of a marbly whiteness.

In phlegmasia dolens, where there is inflammation of veins and coagulation of their contents, the skin is as white as snow.

There is a dingy yellow hue in cancer which is easily distinguished by the pearly lustre of the eyes.

The yellowness of jaundice varies from a pale to a deep green yellow and saffron color.

Redness of the skin, when local, indicates congestion; when general it may be due to erythema, measles, scarlatina, heat, or erysipelas. Redness in gout or rheumatism is usually local.

In diseases of the spleen and lymphatics, whiteness and pallor; but when the blood is not greatly affected, it may be of a muddy hue.

In cholera morbus and malignant cholera, blue; in non-aeration of blood, in pneumonia, bronchitis, disease of heart, cyanosis, blue, especially the lips, neck, ears, nails, face, &c. Lividity might be applied to it instead of blueness, but this term is applied to incipient gangrene.

Spots, patches of discoloration, valuable in the recognition of certain fevers, purpura, scurvy, lead-poisoning, syphilis, and cutaneous disease.

In disease of the supra-renal capsules, bronzed.

In a well-marked case of malarial fever blueness may be looked for.

The skin is of a peculiar uriniferous color and odor in uræmia.

Purple spots or patches in purpura and scurvy.

The pallor of anæmia and the greenish waxy hue of chlorosis are never to be confounded with the pasty hue of kidney-disease. The puffy appearance about the eyelids with anæmia is an indication of albuminuria.

The sallow hue of malignant disease is but another form of anæmia.

In disease of the heart and chronic bronchitis, the blue, livid, or slate color of the nose and lips is remarkable, and contrasts strikingly with the dusky hue of pneumonia or the hectic flush of phthisis.

In measles and typhus fever, suffused eyes are exceedingly characteristic.

Irregular habits of living generally indicated by a bloated, blotched face.

In erysipelas, mumps, facial paralysis, the face undergoes remarkable changes.

SENSATIONS.

Flashes of heat and coldness are peculiar to nervous derangement.

An aura epileptica consists in a sensation of some kind, it may be like a gust of air on the side of neck and head, or a creeping up the arm or leg, or cold water running down the back, a feeling of insects in the skin, etc.

A sensation of pins and needles, or a pricking sensation, is peculiar to paralysis.

There is a great contrast between the external coldness of the body and the sensation of internal heat by which the patient is oppressed. In diarrhœa there is often chilliness.

The heat of fever is often remarkable.

The sensations of a hypochondriac or hysterical patient are often opposed to the evidence of the senses and good reason.

A patient's complaint of want of sleep is sure to be exaggerated. The attendant's statement alone should be relied on.

The sympathetic or reflex pains are important. Pain in the right shoulder is indicative of disease of the liver. Pain in the sacrum, of inflammation of the uterus. In the knee, of inflammation of the hip-joint; of the meatus, of stone in the bladder. At the orifice of the urethra, with aching in the thigh and retraction of testicle or irritation of the ovary, irritation of the kidney. In the cerebellum, of exhaustion of the lumbar portion of the spinal cord. A feeling as if scalp was rising, indicates irritation of the pneumogastric nerve. Drowsy, sleepy sensation, or coma may be due to bile or urea in the blood.

Pain anterior and posterior over either chest or abdomen denotes carcinoma.

Pain in the crown of the head, chronic inflammation of the womb.

EMACIATION SEEMS TO AFFECT,

In phthisis, the arms and thorax most, face least.

In abdominal disease, the lower limbs and face.

In disease of pancreas there is remarkable emaciation.

Increase of bulk often becomes remarkable in dropsy, say of the abdomen, of a limb, or of the head. It may arise from an internal or external tumor.

A delicate appearance, with long fringed eyelashes, points out the tubercular diathesis.

The thickened alæ of the nose and upper lips of tubercular disease are most marked in childhood.

POSTURE AND GAIT.

Inability to stand depends on weakness, vertigo, paralysis. In weakness and vertigo the patient reclines, in paralysis he sits.

In curvature of the spine and disease of the hip the body is bent to one side.

In excitement the gait is quick.

In debility, slow.

In disease of the brain and paralysis, labored, staggering, uneven.

In rheumatism and disease of joints, stiff, halting.

In chorea, constant involuntary moving.

In nervousness, tremor, and more especially in delirium tremens, regular shaking like shaking palsy.

Tonic spasm occurs in tetanus, disease of the spinal cord, poisoning with strychnine.

Catalepsy is a peculiar form of tonic spasm; cramp is its mildest manifestation.

Clonic spasm occurs in epilepsy, eclampsia, chorea, and hysteria; subsultus is also a form of clonic spasm allied to tremor.

In mania and delirium tremens, the muscular movements are exalted.

The muscular movements are generally diminished in idiocy and imbecility and in paralysis. A certain restlessness belongs to hypochondriacs and more rarely to hysteria, allying them with delirium in the external manifestation.

POSITION.

Head chiefly elevated in disease connected with the heart, less frequently in disease connected with the lungs.

Head bent forward when there is pressure on the trachea.

Patient may be unable to lie down from pain of head or giddiness.

Lying on the back is the position of debility; also position for paralysis when combined with inability to alter it; also in acute rheumatism. Same position assumed in acute gastritis, peritonitis, metritis, cystitis, with head and shoulders elevated and knees drawn up toward the abdomen.

A prone position is generally assumed in abdominal spasm or colic.

A doubled-up position, with or without vomiting, is present in colic, the passage of a gall-stone or a calculi through the ureter.

EXPRESSION.

In disease of the heart, and in urgent dyspnoea, acute laryngitis, the face is remarkably anxious and contracted.

When there is much pain in a vital organ, the face is pinched and contracted.

Immobility most remarkable in catalepsy, or in states of unconsciousness and under the influence of spasm and in tetanus.

In nervous disease and hysteria, the opposite state exists.

By the swelling of erysipelas the face is materially altered.

CHARACTER OF THE STOOLS.

Digestion during the day in stomach. During the eight hours of sleep it is carried on in the bowels, and the peristaltic wave is started in the act of masticating breakfast. The entire ingesta is emptied into rectum, so one defecation in the twenty-four hours. Any deviation from the rule is disease: more frequent diarrhoea, less frequent constipation.

Watery, mucous, in diarrhoea.

Undigested food in stools shows that stomach, liver, pancreas are at fault; if fat is passed, the latter.

Very solid and retained longer than twenty-four hours, constipation.

In typhoid fever, like pea soup.

In cholera, like rice-water.

In acute dysentery, blood, mucus, pus.

In chronic dysentery, muco-purulent discharge.

When an internal abscess bursts into intestinal canal, pure pus.

When black, the stools are likely to contain blood.

In piles or hemorrhage low down in bowel, blood of a natural color.

In deficiency of bile they are clay-colored; in excess very dark brown.

When fermentation supplants digestion, frothy, yeasty.

Enlargement of prostate causes the stools to become flattened like a ribbon.

Stricture of the rectum, cut or chopped into flattened pieces.

In disease of the pancreas, there is fat or oil-globules in the stools.

Green, resembling chopped spinach in color, irritation of brain.

In intestinal catarrh, stools mixed with mucus.

Seybala imbedded in mucus, an affection of the colon.

RESPIRATION.

The normal pulse divided by four gives the number of respirations per minute, provided there is no disease of the brain, lungs, or heart. Number of respirations at various ages per minute: First year, 35; second year, 25; at puberty, 20; adult age, 18; old age, 15 to 16. Most frequent in inflammations and fevers.

Pauses in respiration, cerebral or cardiac disease.

Stertorous, labored, with deep sleep, in inflammation of brain, apoplexy, congestive fevers, as typhus.

Imperceptible in collapse, cholera. Very embarrassed in cardiac and bronchial disease.

Hurried or excited respirations are common in nervous excitement, hysteria.

The odor of the breath is often significant. It has a chloroform odor in melituria, diabetes, and chronic alcoholism, when there is sugar in the blood.

Loud respiration under all conditions in which the air-cells are less permeable.

Feeble respiration may be produced by pleuritic effusion, adhesion of the lungs to chest-walls or obstruction of air-passages.

Absence of respiration in catalepsy or great weakness. The respiration is often prolonged in emphysema.

The respiration is often grating, caused by thickening of the air-cells; grating and short in acute bronchitis and pulmonary congestion.

It is often tubular or blowing, which indicates induration or pulmonary condensation.

It is often cavernous or hollow upon the breaking up of cavities in the lung.

It is sometimes buzzing, which indicates a large cavity in the substance of the lung.

The rhonchus and sibilant rales are dry, sonorous, whistling, cooing, snoring, in inflammation of the bronchi.

The crepitating rale resembles the friction of the hair rubbed between the fingers; it is to be heard when resolution begins in pneumonia or bronchitis at the seat of congestion.

The sub-crepitating is the ordinary moist rattle caused by air going down and up through a fluid—the density of the fluid modifying the sound.

TEMPERATURE.

The pulse at birth ranges from 130 to 140; respirations from 33 to 40, and animal heat from 102° to 103° Fah., from which period to puberty there is a gradual decline. From puberty to twenty-five, the pulse reaches 70 or 80; respirations, 18, and the temperature 98°, Fah., at which they remain if in perfect health

till between forty-five and fifty-five, when there is an appreciable decline. A rise is indicative of diminished vitality and disease, and the greater the rise the more aggravated the loss of vitality; and a continued depression, if persistent, is indicative of disease. Observations by the thermometer should be made morning and evening, and a due allowance made for the diminished electrical condition existing in the night, during which time the type of all diseases is much intensified, and labor, death, and other conditions are more likely to occur. In applying the thermometer the bulb should be placed under the tongue, mouth closed, or applied in the arm-pit, or to the groin or belly, and be retained in close contact with the skin and well covered and allowed to remain several minutes.

In all conditions of partial death, as in fever and inflammation, we have an elevation, whereas in collapse, emphysema, cholera, atrophy of heart, &c., there is a remarkable decline. A rise to 103° to 105° is indicative of danger; above that almost invariably fatal. A lowering, if persistent, below 85° , unfavorable; a very sudden fall below that occurring in an acute attack of peritonitis, &c., may indicate gangrene, or perforation of bowel in typhoid. During convalescence, a sudden rise in temperature, pulse, and respirations may indicate a relapse.

We have no instrument superior to the index and adjoining fingers for the pulse, and by the hand laid flat across the base of the chest the respirations can be easily counted.

If there is no disease of the brain proper, heart or lungs, there will be a perfect harmony existing between heat, pulse, and respirations. Pulse 72, divided by four, gives respirations 18 and heat 98° in health, with the rise or fall of each in disease.

SMELL.

The diagnosis by smell is of great importance. Most physicians are able to name the disease from the odor of the sick-room, because special diseases have diagnostic odors, although cleanliness, ventilation, and sanitary measures have done away with the smells that formerly assailed the nostrils of the physician.

Measles, scarlet fever, and smallpox are easily recognized by their odor. The patient will often recognize the dreadful smell of smallpox, and compare the odor of his skin to that which he first experienced on taking the disease.

The odors of typhoid fever and pneumonia are perceptible near the patient and in the room.

There is also a peculiar emanation in tuberculosis, in cancer, and syphilis, diagnostic of each.

The odor of hydro-sulphate of ammonia is always present in open cancer, and on that smell we place great reliance.

The mousey smell of erysipelas, carbuncle, and typhus fever is indescribable.

There are various odors in the lying-in chamber emanating from the patient,—the usual odor of the lochia, that of the lacteal secretion, and that which indicates the approach of puerperal fever.

Many women emit a peculiar odor while menstruating, which resembles a mixture of blood and chloroform; others have peculiar odors from parts of the body.

A peculiar fecal smell is experienced from a lunatic or hypochondriac, very nearly the same as is experienced from patients who suffer from habitual constipation.

The uriniferous odor of uræmia emitted by persons suffering from diseased kidney is all-important.

Malignant cholera can often be detected very early by the odor given out by the skin, breath, and stool.

The odor of the sick-room and of the body of the patient generally, the smell of the breath, the sputa, urine, feces, sweat, ulcers, are utilized for diagnosis and treatment.

The cadaverous odor is a peculiar earthy smell emitted from the body, sometimes as early as two weeks before death, in other cases a few days.

The smell of diphtheria is pungent, and is never forgotten.

The chloroform odor of the breath in diabetes is most significant.

WEIGHT OF THE BODY.

The average weight of the body at birth is about seven and one-half pounds. We meet with cases frequently over twelve pounds and as low as two pounds in living children. But when the average male completes the twenty-fifth year of his age, growth has reached its maximum, but not weight. The general weight consistent with good health and stature should be as follows:

Stature.	Mean Weight.	Weight Increased 7 per cent.
5 ft. 1 in. . . .	120 pounds	128 pounds.
5 " 2 "	126 "	135 "
5 " 3 "	133 "	142 "
5 " 4 "	139 "	149 "
5 " 5 "	142 "	152 "
5 " 6 "	145 "	155 "
5 " 7 "	148 "	158 "
5 " 8 "	155 "	166 "
5 " 9 "	162 "	173 "
5 " 10 "	169 "	181 "
5 " 11 "	174 "	186 "
6 "	178 "	190 "

If greater than the allowed seven per cent., it affects the vital capacity, and respiration becomes diminished. Clothes average about one-eighteenth of the weight of the body in autumn and early spring. Loss of weight is indicative of phthisis, bronchitis, nervous dyspepsia, and other exhausting diseases.

CHARACTER OF THE URINE.

In hysteria, and anæmia of the spinal cord due to self-abuse, the urine is remarkably pale, limpid, and abundant, with a very low specific gravity,—1006 or 1010.

In all fevers and inflammations it is scanty, high-colored, and loaded with uric acid, the result of excessive waste of tissue, which deposits on standing.

If very scanty and much acid, there is a very copious brick-dust deposit.

In disordered liver it gives a red stain to the vessel.

In jaundice the presence of bile gives it a dark porter color.

If blood is mixed with urine, it has a smoky color when acid; a pinkish hue when alkaline; quite crimson when much blood is passed.

The greatest amount of acid in urine is to be found in acute rheumatism or the uric acid diathesis. Urine when it deposits a white limy or calcareous matter denotes nervous disease or the alkaline diathesis; if it contains pus there must be ulceration either in urethra, bladder, or kidneys.

In melituria or diabetes, urine very copious, increased beyond the amount of fluids taken, loaded with grape sugar, and usually of a very high specific gravity ranging from 1035 to 1065, but in rare cases it is very low and still sweet.

Healthy or unhealthy urine may have a peculiar aromatic smell, which may be affected by many articles of food or medicine, such as asparagus, garlic, cubebs, turpentine, copaiba.

Urine voided in the twenty-four hours in a man of average height free from disease, averages about thirty ounces in the summer, and forty in the winter. It should weigh about fifteen per one thousand parts more than distilled water.

If the kidneys are weak it may be highly albuminous, which can be readily detected by boiling, which coagulates the albumen.

In disease of the brain it may be loaded with a white floury substance, which can be precipitated by a solution of nitrate of silver.

Albumen is found in the urine in conditions of weakness, irritation, and collapse of the kidney, and also in diseases of the blood, as anæmia, purpura, and is easily detected by boiling the urine in a tube, when, if albumen be present, it will become milky or cloudy; then add a few drops of nitric acid, which will

clear the urine and coagulate the albumen into a mass. Its quantity can also be ascertained in the same manner.

Phosphates and Chlorides represent waste of brain and bone, and are present to a certain extent in all urine, but are greatly in excess in all nervous diseases, as epilepsy, chorea, masturbation, paralysis, white softening of the brain, and other states. When very excessive they appear as a white cloud in the urine, or in a copious white flour or gritty deposit in the bottom of the vessel.

They are easily detected and their quantity estimated by boiling an ounce of urine, and adding a solution of nitrate of silver in the proportion of sixty grains to the ounce of water, which will precipitate the entire amount of phosphates in the urine, when the excess must be deducted from the normal amount, which will indicate the condition of nerve-waste or nerve-tire or exhaustion present.

Pus is only present when there is suppuration in the kidney from a stone, or from ulceration of the bladder, or catarrh, or a gonorrhœa, and is easily detected by boiling the urine and adding some liquor potassæ, which will coagulate the pus into a gelatinous mass.

Sugar in the urine does not indicate disease of the kidney, but rather of the liver, pancreas, or more especially of the co-ordinating chemical centre in the brain,—in some cases to over-feeding; and for domestic purposes can be easily ascertained, if it exists, by placing the chamber with the newly evacuated urine in a warm place, keeping it at 80° Fah., and adding a teaspoonful or more of yeast; effervescence will soon take place, a brisk discharge of gas ensues, and a yellowish liquid is formed, which has the odor of beer, and by distillation yields an alcoholic liquid. The quantity of sugar present can be estimated, since every cubic inch of carbonic acid gas given off by fermentation corresponds to one grain of sugar, so that the quantity can be readily approximated.

Bile in the urine is likely to be present in disease of the liver, and it may be necessary to distinguish it from certain color principles as rhubarb and santonine. Dip a white rag into urine that contains bile, it is at once colored yellow. Pour a little urine on a sheet of writing-paper to form a very thin layer and let one or two drops of nitric acid drop on it. If bile be present, green and pink colors will show themselves around the drop. This can be confirmed by mixing a little muriatic acid with the urine and then adding a few drops of nitric, and a change of colors, of yellowish-green, green, blue, violet, red, occurs.

Uric Acid in excess represents rapid waste of the nitrogenous elements, as in fever and inflammation, but a supply of

nitrogenized food greater than what is required for the repair of the tissues, such as excessive indulgence in animal food, too little bodily exercise, isolation, monotony, sameness, deficient aeration of the blood; and also an insufficiency of gastric juice is easily detected by the blue litmus-paper being turned red by the brick-dust sediment in the chamber-vessel.

MICROSCOPE.

A thorough knowledge of all the tissues of the body, its normal and abnormal secretions, is necessary for diagnosis with the microscope. An instrument of small power is the most useful, say from 250 to 300 diameters, one whose adjustment is easy, so that an object can be readily detected. It is of great utility to detect diseased germs in the secretions, especially in discharges or scrapings. For example, by scraping the tongue in all cases of mal-assimilation, we can see the *bacteria*; in typhoid fever, the *vibrios*; in diphtheria, the *oidium albicans*; in the discharge from the nose in catarrh, the *amœba*; in the urine, the germs of *cancer*, and in the sputum, those of *tubercle*. Most invaluable, and one which the uninitiated in medical science can readily and at once appreciate.

VITAL CAPACITY OF LUNGS.

To test correctly it must be done by a spirometer, an instrument used to measure the volume of air expired from the lungs. Quantity expired after the most complete inspiration is the total volume of vital capacity. The vital capacity increases with stature and is considerably affected by weight. The capacity to breathe is affected most by phthisis. The following table shows the capacity in health and in the three stages of pulmonary consumption:

		Capacity in Health.		Capacity in Consumption.			
Height.		Cubic Inches.		First Stage.	Second Stage.	Third Stage.	
5 ft.	1 in.	. .	174 . . .	117 . .	99 . .	82 . .	
5 "	2 "	. .	182 . . .	122 . .	102 . .	86 . .	
5 "	3 "	. .	190 . . .	127 . .	108 . .	89 . .	
5 "	4 "	. .	198 . . .	133 . .	113 . .	93 . .	
5 "	5 "	. .	206 . . .	138 . .	117 . .	97 . .	
5 "	6 "	. .	214 . . .	143 . .	122 . .	100 . .	
5 "	7 "	. .	222 . . .	149 . .	127 . .	104 . .	
5 "	8 "	. .	230 . . .	154 . .	131 . .	108 . .	
5 "	9 "	. .	238 . . .	159 . .	136 . .	112 . .	
5 "	10 "	. .	246 . . .	165 . .	140 . .	116 . .	
5 "	11 "	. .	254 . . .	170 . .	145 . .	119 . .	
6 "	. "	. .	262 . . .	176 . .	149 . .	126 . .	

To test the vital capacity, a man should stand in the erect posture, take as deep an inspiration as possible, at the termina-

tion of which the tap should be turned off by the operator and the vital capacity can be traced off the scale. It is not for one moment to be supposed that the lungs are emptied of air, as there always remains a certain proportion called residual air.

The vital capacity is greatly diminished in bronchitis, emphysema, pneumonia, as well as in consumption and in disease of heart and viscera of the abdomen.

Spirometer.—An instrument for measuring the volume of air expired from the lungs. Females measure less than males, and in either sex the lung-capacity decreases after fifty. The quantity of air expired after complete inspiration is termed the vital volume or capacity. This increases by stature. Obesity diminishes the breathing capacity; so also does any abnormal condition which interferes with the mobility of the thorax or the inflation of the lungs. Effusion into lung-structure is the most prominent of all forms of obstruction. Every inch of consolidated lung insures a decrease of forty cubic inches of air by measurement, and should have immediate attention.

ELECTRICITY,

As a means of diagnosis is of rare value. The best mode of application is by or through wet sponges. The positive pole in all cases should be applied to the origin of the nerve, and the negative to the other end. By placing the positive at the nape of the neck, the centre of all nerve-supply to the body, and the negative over the chest and abdomen, any weakness or tenderness can readily be detected; or, running it down the spine, any loss of vitality in any special nerve can be recognized by a soreness, or burning, or tenderness over it, and the disease located in the cord and organ to which the nerve branches. It is particularly valuable in recognizing the diseases of muscles, especially any tendency to fatty degeneration. In placing the positive pole at the origin of a muscle and the negative at the other end, the muscle if healthy will knot or contract in the centre. The battery must be of sufficient power. The points which it elucidates are the tenderness and soreness of weakened parts, and behavior of the muscles. Still it is capable of defining precisely obscure forms of paralysis, whether due to effusion or white softening.

In diagnosing paralysis, it is well to test the sound side first, then the affected side, and compare the result. Keep the two poles on the muscles about four inches apart; the positive to the origin, and the negative to other end, then the contractibility can be compared.

In Hemiplegia due to effusion, the paralyzed muscles lose their contractibility at once; in that due to white softening, by degrees.

In Paraplegia, the condition of the paralyzed muscles is similar to hemiplegia.

In lead and mercurial paralysis, the contractibility remains after the power of voluntary motion is gone, or till atrophy has set in.

In rheumatic paralysis, the contractibility is usually normal.

In progressive muscular atrophy, diminished contractibility follows the gradual destruction of the muscles. (See Electricity.)

THE SPHYMOGRAPH,

Is an instrument designed to give the curve of the radial pulse by tracing. It is strapped on the wrist and is moved by the stroke of the pulse. It never can supersede the fingers, but as a curiosity or toy is well adapted to deceive the ignorant.

SPINAL DIAGNOSIS.

The method of diagnosing disease of the chest and abdomen by mapping out a seat of irritation or anæmia of the spinal cord is old and empirical. It consists in either applying a sponge pressed out of hot water, or the electrode of a battery, or pressure with the fingers in the intervertebral spaces. If a tenderness or weakness or irritation can be detected, then it is supposed that there is lost vitality in the nerve or nerves that emanate from that point, and the organ in chest or abdomen that the nerve supplies suffers from diminished vitality or disease. The irritation or disease in an organ is carried to the cord, which is a reflex centre, sets up an irritation there, and a tenderness or weakness can be detected. In hysteria, masturbation, and other anæmic conditions of the cord, such points are said to exist. The method has no merit, neither is it reliable, but often subserves the ignorance of the charlatan.

LONGEVITY.

By this is meant the mean number of years which at any given age the members of a community, taken indiscriminately, may expect to live. An easy rule, and one very generally adopted by life insurance agents, has been established for determining this fact, and corresponds very closely with our best statistics. The criterion or rule for determining this is: The expectation of life is equal to two-thirds of the difference between the age of the individual and eighty. Thus, a man is twenty years old, sixty is the difference between this age and eighty; two-thirds of sixty is forty, and this is the sum of his expectation. By the same rule a man of sixty will have a lease on life for fourteen years; and a child of five for fifty years.

Another method of testing the longevity is by drawing a piece of thread from the outer corner of the eye to the centre of

the prominence at the back portion of the head (the occipital protuberance), taking the opening or meatus of the ear as the index. If the opening is below the line, and for every degree below, strong vital tenacity,—a degree of vital force that will weather grave disease; if the opening is on the line with the cord, vital force is very weak, little power of resistance to ward off morbid action; if the opening is above the cord, the slightest, most trivial disorder will cause death. The natural atrophy or shrinkage of the brain in old age and in whiskey-drinking is often remarkable, and exhibits the veracity of this line or angle.

TEMPERAMENTS.

The Caucasian race, wherever met, range themselves under temperaments. There are a great variety, but for all useful purposes they may be divided under four classes, two vital and two non-vital.

1. The Sanguine.—A vital temperament in which there is a florid complexion, expanded chest, great vivacity of disposition, strong tenacity of life, a most hopeful mind, progressive, exhibiting a preponderance of the vascular system, circulation full, strong, vigorous.

2. The Bilious.—A very vital temperament, sallow skin, dark hair, progressive, muscular system well knit, remarkable for the compactness of fibre, indicative of great strength, endurance, and activity.

3. The Nervous.—A non-vital temperament, in which the nervous system has been developed at the expense of the physical features; white, sharp outline, irregular and vivacious activity; great susceptibility to impressions; a predominance of the nervous over all other functions; complexion may be either dark or fair.

4. Lymphatic.—A non-vital temperament created by civilization, and excess in eating and drinking more than the wants of the economy demand. The face is round, soft, and full, the abdomen large, and circulation languid. Although there is no distinctive vital temperament in other races, still the Indian-American, Mongolian, and Negro, when brought in contact with the vices of civilization, rapidly acquire the non-vital temperament and thus become extinct.

It is a well-known physiological law that if the respective parties to a marriage are similar or identical in temperament, so that no appreciable difference exists, sterility will be the result of the marriage, even though they be dissimilar in appearance; if they are made up of portions of the same temperament their union would be incompatible. The maintenance, perpetuity and vigor of the white race is inherent in the vital tempera-

ments; without their agency there could be no stamina nor vital attributes. The non-vital, nervous, and lymphatic are great deteriorations, the effects of high civilization and excess.

They have no diagnostic complexion; if they are of a bilious temperament they will be dark, if of a sanguine, fair. The non-vital possesses a very feeble vitality; still, when combined with one of the vital temperaments, may give us a useful specimen of humanity. If the non-vital marry, whether it be nervous and lymphatic, or nervous and nervous, no procreation of an offspring: it will die out, as the tendency is to extinction, as the race cannot suffer deterioration. The production and prevention of the non-vital temperaments is an important field of scientific investigation, involving the well-being and perpetuity of our race.

The greatest differences that can be obtained between the respective sexes within the race between the vital temperaments is the most favorable for a large, long-lived, energetic, civilizing family,—the difference is essential for a healthy offspring. All marriages in antagonism to this law will entail on the children some unfortunate result. Children born from parents partly incompatible possess a feeble organization, which is liable to yield to the simplest forms of diseased action, and it is here that a scientific practitioner is so frequently baffled—his best resources of no utility, for in its very birth, blood, tissue, organization, disease and death are stamped, the product of incompatible marriage.

It is unnecessary to repeat that races are antagonistic and distinct, that marriage should never be consummated outside of the race, for if it is, and there be offspring, that progeny will be tuberculous and will inevitably die out. It is simply a deterioration to both races concerned in the effort, and should be prohibited by the most rigid legal enactments, and not countenanced by a set of pseudo-fanatics.

Modern clinical pathology enjoins on every one treating disease, the necessity of a careful examination of the patient. Often, indeed, correct diagnosis, and consequently treatment, depends on the performance of this duty. Exact elucidation of the case is always necessary, as neglect of the presence or absence of a single point may be of grave importance.

To recognize disease by some or all of the rules laid down, is the object of this article.

DISEASE.

Disease may be defined as a deviation from health, or a partial death either of a part or of the entire body. Some would define it as a want of equilibrium between the positive and negative forces of the body; others a difference between the solids and fluids. The aim or object of all treatment in disease is to aid nature to promote a renewal of life.

SHOCK, PROSTRATION, COLLAPSE.

A state or condition that signifies great depression of vital power, liable to follow any accident, injury, or concussion, or inhalation or absorption of any poison, or any depressing passion or excess.

Symptoms are very variable. Most commonly however, we find the patient lying on the back, with a cold skin, feeble pulse, sighing respiration, half unconscious. If the force of the shock or injury, or poison, has fallen upon the vascular system, there will be syncope or fainting, pulse and respiration imperceptible; if upon the nervous system, patient bewildered, incoherent, vomiting, coma, convulsions, paralysis of sphincters.

The duration of the stage of prostration is variable, depending on the power of vital resistance inherent in the patient and the amount of violence inflicted or poison absorbed or degradation of living matter, commonly from a few to forty-eight hours.

The mode or manner of recovery from shock or collapse is termed *reaction*,—everything depending on the nature, degree, or quality of that reaction. If, aided by proper means, it is perfect, we have recovery; if in spite of our best efforts it is altogether wanting, we have death; if it is imperfect, then it is followed by *fever*, a salutary effort of vital force for recovery.

The indications in treatment are to stimulate vital forces to healthy reaction. If the patient is cold, shivering, respiration and pulse feeble, diffusible stimulants should be administered, such as brandy and water, or capsicum, or some preparation of ammonia; if incapable of swallowing, the same remedies should be administered by the rectum in an emulsion of slippery elm, and spirits of turpentine added. The patient should be bathed all over with ammonia and warm water, after which he should be well dried and rubbed with dry mustard. If no reaction is perceptible, dry cups or scorching hot pillows should be ap-

plied to both sides of the spine, and mustard plasters with heat to the feet. Rubbing the skin is of the greatest importance, as we thereby stimulate the periphery of nerves, which stimulus is carried to the brain. Artificial heat by means of bricks wrapped in flannel, or bottles of hot water, should be applied all around the patient's body, especially inside of arms and thighs. Stimulation must be persevered with, and other remedies, such as quinine, resorted to, the object being to establish an equilibrium in the body, and the greatest care should be observed not to over-stimulate, as we thereby produce exhaustion with cerebral excitement. What is desired is perfect reaction, so that fever, the condition of imperfect reaction, may be obviated.

FEVER.

Fever is a condition of imperfect reaction,—a salutary effort of nature at elimination or repair,—an effort of impaired vital force at restoration.

The common causes of fever are the action of heat and cold, mechanical injuries of all kinds, poisons, disease-germs whether degradations within the body or the result of contagion and infection, malaria, depressing passions, over-crowding, sewer-gases, &c.

The ordinary symptoms of fever are languor, lassitude, debility, pain in the head, back, and calves of the legs, rigors, high heat, frequent pulse and respirations, with derangement of the secretions.

The poison or living germinal matter that produces these symptoms may have gained access to the patient's body through the air, or water, or food, or it may be the degraded or changed living matter of his own body. The salivary glands of the mouth are the most eligible channels of a poison gaining access to our bodies. This is apparent by the disturbance of the stomach. Once the poison has gained admission and found its way into the blood, it grows with great rapidity, and is diffused throughout the entire body, disturbing the vitality of organic living matter with which it comes in contact. The destruction caused by fever or germ-disease involves every constituent of the body.

General nervous depression is the characteristic of all fevers. The prostration, rigors, headache, with pain in the back and calves of the legs, denote a partial death of the nervous system. Pain exists in every sentient nerve in the body, but is experienced most keenly by the patient in the large superficial sentient nerves of the back and calves of the leg. In fever we have a diminution of evaporation, the dormant skin does not act as a

refrigerator, destructive metamorphosis is great, the semi-vital chemical changes raise the temperature,—there is rapid oxidation, the passage of organic into inorganic matter, the blood loaded with germinal matter, together with the irritation of brain and the eighth pair of nerves that supply the liver, causing an excessive secretion of glucose, all of which go to explain the heat of fever.

The controlling action of the brain being impaired, the heart and lungs are irritable, and their action accelerated. The brain needs more vital force to hold them in check. All the secretions and excretions are depraved.

The termination of fever is either recovery or death; the former may in some cases be imperfect, terminating in other forms of disease, as anæmia, paralysis, &c.

Some fevers, due to disease-germs, a specific contagion, have a definite period of existence in the body, which limits their duration. Nearly all contagious diseases are of this class.

Fevers are easily recognized by their symptoms: languor, pain in the head, back, calves of legs, rigors, with high heat, frequent pulse and respirations, with perverted secretions.

If the heat of fever does not exceed 103° Fah., with favorable surroundings, hygiene, nursing, and no irreparable lesion, good hopes may be entertained of rapid recovery.

Treatment.—The indications of treatment are based upon one fundamental rule: stimulating the vital forces to healthy reaction. See where vitality is wanting, and aid in supplying it. These may be more definitely expressed as follows: To administer remedies to diminish heat, pulse, and respirations, maintain vital force, destroy poisons or disease-germs that are the chief factor of the fever, and excite all glands to healthy action.

In the incipient stage of all fevers, very great benefit is derived from an emetic to unload the stomach, an active or gentle cathartic to relieve the bowels, and an alcoholic vapor bath or some form of bathing to start the function of the skin.

The utility of an emetic is apparent: the poison that probably caused the fever has been taken in by the salivary glands, swallowed, and lowers the vitality of the stomach. It loathes food, fails to digest, and the symptoms are much ameliorated by an emetic. Before administering this, the patient should drink freely of tepid water with a small amount of bicarbonate of soda, so as to neutralize the acid secretion from the walls of the stomach. Following the emetic, the alcoholic vapor bath, then the cathartic. Typhoid fever is the solitary exception among all fevers to the use of purgatives; in that fever they are not admissible, except in some rare instances.

If the patient is unable to sit up or very young, or pregnant,

instead of the alcoholic vapor bath, sponging the entire body should be resorted to with tepid alkaline water. In some cases vinegar is a good addition.

Then the regular treatment for the case should be laid down.

The room selected for the patient during his illness should, if possible, be isolated, well ventilated, no draught, abundance of light, free from carpets, curtains, and paper on the walls, as they retain the seeds of disease. If possible, an open fire-place, and if the season permits, a fire, so as to destroy the disease-germs as they escape from the patient. If convenient, two beds should be placed in the apartment, so that the patient's clothing and bed-clothing can be changed daily, and he lifted from one bed to the other. In all cases the head of the bed should be placed to the north, feet to the south, and insulated from the floor with glass castors or pieces of glass, so that the patient may be in unison with the magnetic law of the earth. The greatest cleanliness should be observed. When clothing and bed-clothing are removed, they should at once be immersed in water with an antiseptic. No unused food should be permitted to remain in the room. Antiseptics, such as chloride of lime or carbolic acid, buckets of water with bromine, or iodine, or permanganate of potassa, should be exposed in different corners of the apartment. If a nurse is to be selected, let her be young, strong, vigorous,—few attendants except the nurse, so that the contagion be limited as far as possible. All superfluous matter should be kept away from the patient, even books. Magazines and papers should never be permitted to get out; after perusal they should be destroyed. In all cases the hair should be cut short and the cut portion destroyed or deodorized. The recumbent posture is the true one, it retains the nervo-vital fluid in the spinal cavity and not in the cranium, and gives a diminution of pulse of at least ten or twelve beats per minute, with a corresponding lowering of heat and respirations. The entire body should be sponged three times daily with an alkaline wash such as castile soap and warm water, or bicarbonate of potash and tepid water, well dried, and then rubbed with the dry hand. It is sometimes beneficial to follow this with vinegar and water, which is cooling and grateful to the patient and excites the normal alkaline secretion from the skin. The alkaline bathing removes the disease-germs, opens up the emunctories of the skin; the rubbing with the dry hand dislodges the disease-germs from the capillaries, removes the stagnation in the microscopical circulation, and the reflex effect of it is highly vitalizing to the medulla oblongata, the seat of reflex action and life. Besides, the inherent vitality of the nurse is in this manner communicated to the patient, so that instead of elderly ladies being selected for nurses, we demand the young and healthy. The

law of reflex emanation is definite: we assimilate the vital condition of those with whom we are brought in contact.

In exhausting fevers, like typhoid, good results are derived from the inunction of warm olive oil after the sponging and drying off. This aids nutrition, supplies the place of arrested sebaceous follicles, and softens the skin, for exhalation attracts the germs to the surface. Oil is perfectly compatible in the living tissues.

Physiological chemistry explains the imperative necessity of drink in fevers. Water requires to be in excess of the demand; acidulated drinks of water, with a few drops of acetic or hydrochloric acid, enable the albumen to be acted on by the gastric juice. All acid substances have the power of increasing the normal alkaline secretions of the body.

Apply heat to the feet in all cases of fever, for though the action of the heart is violent yet it lacks the stamina or power to send the blood to the capillaries; besides, the nervous system, upon which the circulation depends, is incapable of performing its function in aiding the circulation, and artificial heat aids in a renewal of life. As to the clothing of the patient, cotton and linen should be avoided, and woolen or silk preferred as conservators of vital force and being impervious to atmospheric changes.

In fever the nitrogenous tissues are devitalized, drained away, and it is important that they should be replaced, so that small doses of nitrogenous aliment should be given frequently. These pass over the irritated stomach unconsciously, and are taken up by the lacteals in the intestines, requiring very little to make them fit for absorption. The most suitable food is milk. It forms the most appropriate nourishment for fever patients. Two to three ounces should be given every two hours with half a teaspoonful of lime-water. If it disagrees, substitute beef tea for the milk. If the patient is properly nourished, it renders the danger much less. Albumen, such as we possess in eggs and oysters, is highly nutritious if quickly absorbed, but if delayed as they are likely to be by the impaired condition of the stomach, their decomposition is highly injurious,—the sulphureted hydrogen and other gases evolved are so poisonous that an aggravation of symptoms is the result. A good condition of gastric power is necessary for the digestion of eggs and oysters.

Alcohol is a poor stimulant: it has no food or blood-forming faculty; its only property in fever is an arrester of destructive metamorphosis or change, so with reference to its use in fevers we must be guided by the amount of disintegration going on. If there is great prostration, low muttering, delirium, excessive phosphatic elimination by the kidneys, it should be given. It

acts well if there is tremor of the muscles, a sharp, weak, unequal pulse, or rapid respiration.

Sleep is most essential in fever. It is only during sleep that the brain picks up its nutrition or pabulum from the blood. There is no nutrition without sleep.

In our pathology of fever we must bear in mind that we have a condition of nervous depression, and in order to meet this we must use, in aiding the salutary efforts of nature, cerebral stimulants, or, as they are termed, arterial sedatives, such as aconite, veratrum viride, green root tincture of gelseminum, digitalis, belladonna, &c. They not only stimulate the brain, but relax the capillaries and skin, and under their use heat, respiration, and pulse diminish. Antiseptics in all cases should be administered, as they tend to destroy disease-germs and in this way are of the greatest utility in all fevers. General treatment according to the condition present, convalescence in all cases being established upon tonics, nutritious food, fresh air, and sunlight.

Fevers are usually divided into two great families, idiopathic and traumatic. The former term is applied to all that originate within the body; the latter to surgical fever,—that symptomatic of an injury. The proper division is into continued, intermittent, remittent, eruptive, and surgical.

INFLAMMATION.

Fever is a partial death of the entire body; inflammation is a local fever, and involves only a portion of the body. Inflammation then is a partial death or a condition of vital depression of a part or some organ of the body.

Causes.—Anything that tends to diminish, damage, or destroy the vitality of a part of the body, such as heat, cold, wet, poisons, mechanical violence, &c.

The permanent symptoms are pain, heat, redness, and swelling.

Pain is a symptom of partial death, of deficient vitality, or vital depression. It differs in structures and tissues according to their physiological function, chemical composition, and anatomical structure.

The nerve-tissue being intrinsically the most valuable, most highly organized, and vital, is the most resisting, the most difficult to depress, and when once devitalized the most tardy of all structures to regain its vitality. The pain also, when it suffers a partial death, is out of proportion to all other pain, especially so if the brain has suffered the shock: here it is frontal, and aggravated by noise, light, heat, and motion.

If the skin suffers a partial death or inflammation, the *pain* is *burning, tingling*; if the cellular tissue, *throbbing*; if the serous

membranes, like pleura, *sharp, lancinating*; if the mucous membranes, *sore, raw*; if in bone, *dull, deep-seated*; if in cartilage, more intense. Pain may not be experienced in the inflamed part, but reflected by recurrent nerves to a part at a distance, as for instance, in inflammation of the *liver* the pain is in the shoulder; of the *kidney*, at the orifice of the urethra; of the ovary, in the front of the thigh; of the uterus, in the sacrum; of the hip-joint, at the knee.

The heat of inflammation is caused by the semi-vital chemical change, the passage of organic into inorganic matter, the perversion of nutrition, rapid oxidation, molecular excitement, and general metamorphosis of structure.

The congestion and redness are due to the lost contractility of the walls of the blood-vessels, whereby their walls become loose and lax,—the blood rushes in and the minute capillaries being also relaxed, *red* blood circulates where *white* only passed through, and the walls being so relaxed the more watery portion passes through their walls. The blood-vessels owe their contractility to the nerves that supply them, so the vitality of the part or its nerves being so weakened permits of the changes; indeed, its chemical character is altered,—in health neutral or alkaline, it is in inflammation intensely acid.

Besides a change in secretion, there are important changes in the structure of the part, as degradation of living matter into disease-germs which cause it to spread.

Inflammation has but one genuine termination,—resolution or recovery,—the subsidence of the inflammation and the restoration of the part to its original condition; but besides this legitimate termination, there may take place from various causes the following effects, viz.: *Effusion* of serum; *effusion* of blood or hemorrhage; *effusion* of lymph; the breaking of lymph and *formation* of pus; ulceration; gangrene, or mortification.

Inflammation may be either acute or active, sub-acute or passive, and chronic. It is called acute when it sets in and runs its course rapidly, when the symptoms are all well defined and are accompanied with rigors and a fever; sub-acute, same as the acute, with the exception that there is no fever. Chronic may be either a sequel of an acute or sub-acute attack, or it may come on *per se*. It is liable to occur in patients of low vitality. It usually progresses slowly, insidiously; symptoms not well defined; no fever, and has a tendency to terminate in effusion of serum or thickening.

The permanency of the pain, heat, redness, and swelling is the best point by which to recognize inflammation.

The correct treatment of all inflammation is powerful local and internal stimulation. Local stimulants of such power should be applied as will speedily cause a renewal of life in the part,

so as to obviate the condition of pain, induce contractility of blood-vessels, and overcome partial death; internal stimulants, as aconite, veratrum viride, gelsemium, digitalis, cinchona, that tend to equalize the action of the heart and arteries by imparting tonicity to the brain; and antiseptics in case of grave inflammation, for in all its varied forms there is a degradation of the normal living matter concerned in nutrition into bacteria, which must be guarded against. It should be laid down as a rule in practice in inflammation, that if local stimulants are insufficient to give an amelioration of pain, then the impressibility of the sensorium must be blunted by opium or other anodynes, the rule being an entire freedom from pain must be secured.

General attention should be directed to hygiene, rest, diet, sponging, and secretions.

Effusion of Serum may occur during inflammation of any tissue, but by preference from serous membranes, as the periosteum, membranes of the brain, the pleura, and peritoneum: the cellular tissue is also obnoxious to serous effusions. When effusion of serum takes place, whether it be from membranes of the brain, pleura, peritoneum, or cellular tissue or other structures, it constitutes what we term dropsy, not a disease, a mere mechanical effect. Serous effusion, however, often gives rise to much trouble, especially if within the cranium, chest, or abdomen; in the extremities it constitutes what we term œdema or dropsy, pitting upon pressure. Although not a disease, its presence is liable to bring about grave complications, and it must be got rid of at the very earliest moment the inflammation can be overcome.

To get rid of serous effusion, the appetite should be stimulated with tonics, as teaspoonful doses of compound tincture of cinchona, before meals, and the very best of blood-elaborating diet given. Before making any decided attempt at the removal of the dropsy, place the patient upon an infusion of digitalis for a few days. To half a pint of water, boiling briskly, add one or two grains of fresh pulverized digitalis, boil for five minutes, then cool and administer one wineglassful every two or three hours; continue from day to day till the patient becomes quite melancholy or despondent, then administer less frequently and in smaller doses. Now is the opportune moment to commence with diaphoretics, diuretics, and hydragogue cathartics, just as the digitalis has unlocked the flood-gates of the body. Then take of

Pulverized mandrake, thirty grains; pulverized nitrate of potash, one drachm; cream of tartar, one ounce. Mix.

Make ten powders, and let the patient take two or more daily, so as to cause at least three watery evacuations from the bowels in the twenty-four hours. In addition, a teaspoonful of the fol-

lowing mixture should be taken thrice daily, in a glass of water:

Camphor water, four ounces; nitrate of potash, half an ounce; muriated tincture of iron, one ounce. Mix.

At the same time an alcoholic vapor bath should be given every other day. As a drink to encourage free sweating, an infusion of jaborandi or pleurisy-root. Patient kept moderately warm and clothed in flannel.

If the above means fail, discontinue the mandrake mixture and substitute a pill, one-twelfth of a grain of elaterium. If the patient is unable to bear such active remedies, five-grain doses of iodide of potassium should be given in a tablespoonful of fluid extract of saxifraga.

Treat effusion or dropsy in the extremities in the same manner, with the addition of rest, elevation, compression by rollers, friction, shampooing, steaming with medicated vapors, electricity. (See Dropsy.)

Effusion of Blood.—Hemorrhage, as a result of inflammation, may take place prior to or during its activity; or the inflammation may so terminate.

Organs that are freely supplied with blood-vessels, when they suffer a partial death are more liable to have hemorrhage occur in them than others,—as the lungs, stomach, bowels, kidneys, bladder, urethra, uterus.

In the treatment of hemorrhage as a result of inflammation, the main point is more thorough arterial sedation, more active local stimulation.

If from the lungs, large doses of veratrum viride; if from the stomach, rectum, kidneys, or uterus, the green root tincture of gelsemium, and digitalis.

If the hemorrhage is violent, styptics may be resorted to, but the true principles of treatment of inflammation should never be lost sight of. Salt, iron, gallic acid, digitalis, matico are useful if from the lungs; capsicum, salt, gelsemium, if from the stomach; erigeron, gallic acid, ergot, if from the kidneys or uterus.

In surgical operations, the vessels should be ligated,—still there are often minute capillaries that bleed. Then carbolic acid spray, exposure of the bleeding surface to the air, pressure by bandages, cold, perchloride of iron, matico, spider web.

Effusion of Lymph.—This is a very common termination of chronic inflammation, still there can be little doubt but that it is present in all forms. When it takes place, it causes induration, thickening, adhesions, mechanical obstructions.

In surgical practice, the greatest ingenuity has been exercised to procure effusion of lymph for the purpose of cementing or joining parts. For this purpose all foreign bodies are

removed. Catgut ligatures are used. An antiseptic spray flows upon the wound to destroy degraded matter or bacteria. Metallic sutures and antiseptic dressing are extensively employed. Effusion of lymph for the purpose of repair can only take place when there is total absence of pain, and when the vital forces are normal. Lymph is often effused in general inflammations: in pleurisy, where it forms adhesions; in inflammation of stomach, thickening; in canals, forming strictures; in glands and tissues, forming swellings.

It is highly desirable to get rid of effused lymph, because if permitted to remain it is liable to break down at any time the vital forces of the individual become impaired, and form an abscess.

To cause an absorption of effused lymph our best internal remedies are iodide of potassium, iodoform, bromide of potassium, saxifraga, phytolacca, blue flag, mandrake.

Our local remedies are green plantain leaves, phytolacca, stramonium, belladonna, ozonized clay, iodide of potassium, iodoform, potassa, ammonia. Shampooing, friction, and electricity are very doubtful in their utility. When adhesions have taken place, the continuous application of the irritating plaster is a powerful resolvent, and aids in the breaking down or absorption of the adhesions.

The Formation of Pus.—Lymph or plasma from the blood is effused to a greater or less extent in all forms of inflammation, but especially in the chronic, and is liable at any moment there is the slightest nervous depression, to break down and become pus. This event is invariably ushered in with rigors, but when it occurs during acute inflammation, simultaneously with the rigors the pain changes to a throbbing or beating, the heat diminishes, congestion and redness disappear. When it occurs during chronic inflammation or after inflammation has ceased, it is also invariably preceded by a rigor. The broken-down lymph constitutes pus, and a collection of pus anywhere forms an abscess. The precursor or rigor is followed by the lymph breaking down in the centre and gradually enlarging, perhaps pointing, and a sense of fluctuation is experienced to the touch. There are numerous varieties of pus, as, healthy or laudable, when it is thick and creamy; serous, when it contains water; sanious, when it contains blood; curd-like or cheesy, when it contains tubercle; muco-purulent, when it contains mucus mixed with purulent matter; lardaceous, if like lard; specific, when it contains a special living germ or poison; and putrid, when dark or offensive.

The division of abscess into acute and chronic, superficial and deep-seated, explains itself.

The moment pus has formed, there should be an assiduous

effort made to aid the vital forces of the part in its further progress by the application of heat and moisture in the form of a well-made poultice, which should be continued until the lymph has entirely broken when a free opening should be made into, the part and the poultices continued for a day or two, then dressed with an ointment of vaseline.

Simultaneously with the evacuation of the pus and breaking down of the entire amount of lymph effused, nature begins to throw out lymph anew at the bottom of the abscess or cavity; this is at once permeated by blood-vessels and nerves; then another layer which becomes similarly organized, and so on until she reaches the surface, when around its edges can be seen a white milky scum, which gradually covers the entire surface. The process of effusion of lymph, its organization or permeation with blood-vessels and nerves, is called the process of cicatrization; when it is covered over with a new skin or cutis it is called a cicatrix. In order that the effused lymph may exhibit vital elements, the process may be devoid of pain, the pus laudable, and the granulations neither pale or red. During such a process of repair the vital stamina of the patient should be well sustained with good food.

Gangrene, or Incipient Mortification.—When the vital forces of a part are so shattered that the salutary effort of nature fails in obtaining resolution, then the process of dying is liable to set in. If it is an internal vital organ, the sudden cessation of pain following a high intensity of symptoms, with a typhoid condition supervening, features becoming small and contracted, breath and extremities cold, intermitting wiry pulse, indicate the approach of mortification or complete death.

If the inflammation occurs in an extremity and it is about to terminate in gangrene, pain suddenly ceases, the redness becomes of a livid color, the congestion soft and flaccid. It crepitates when pressed upon, from the fact that it contains gases, the productions of putrefaction and a train of typhoid symptoms.

In gangrene, when the parts yet retain a certain degree of vitality the object should be to arrest the occurrence of mortification. Internal stimulants and antiseptics, as brandy and quinine, yeast; and locally poultices of charcoal, yeast, capsicum, wild indigo weed with carbolic acid, changed frequently. If this poultice does nothing in arresting the condition it will at least stimulate a line of demarcation between the living and dying part. Such a line usually makes its appearance in the form of a red blush, which soon raises into a blister; this soon ruptures, forming a line of ulceration with a furrow.

In the treatment of all forms of inflammation, the most decided and energetic measures should be resorted to; internal

and local stimulation should be the rule, in order to prevent the process of dying (gangrene) or complete death (mortification) from taking place.

CLASSIFICATION OF FEVERS.

Much has been written on the classification of fevers. In order to be as clear as possible, they may be arranged in the following order:

Simple or continued fever, milk fever-

Gastric fever.

Simple bilious fever.

Intermittent fever, ague, malarial fever.

Remittent fever simple, remittent bilious and malignant.

Relapsing fever.

Typhoid or enteric fever.

Typhus fever, plague.

Yellow fever.

Dengue or break-bone fever.

Erysipelas.

Diphtheria.

Cerebro-spinal meningitis, or spotted fever.

Puerperal fever.

Anthrax (giant bacteria.)

Surgical fever, simple, irritative, intermittent, hectic, and typhoid.

Measles.

Rotheln or French measles.

Scarlet fever, simple, anginosa, malignant.

Smallpox, discreta, confluent, malignant.

SIMPLE CONTINUED OR EPHEMERAL FEVER.

A slight depression of the nervous system, with fever, in which the vital forces react, sometimes in a day, at other times having a variable duration of from a few to ten days.

The cause is usually cold, wet, exposure, overwork, mental depression.

The usual symptoms are, the patient is seized with lassitude and debility, nausea, want of appetite, chilliness, pain in head, back, and limbs. After a few hours rigors and a fever, high heat, frequent pulse and respirations, headache, thirst, constipation, dry skin, scanty urine, perhaps slight delirium; symptoms aggravated at night. After a few days a remission; critical sweating or diarrhoea. Convalescence often somewhat slow.

It usually terminates in recovery.

It is easily recognized by its cause, mildness, short duration, by its common occurrence in children, persons of feeble vital force, and nursing women.

In the treatment the ordinary indications for treatment of fever should be followed. An emetic of the wine of ipecac, preceded with copious draughts of tepid water rendered alkaline by the addition of half a teaspoonful of bicarbonate of soda to the half-pint; alcoholic vapor or warm bath; to be followed with a teaspoonful of Rochelle salts every two hours, until the bowels move freely; rest in bed; sponging; diet, beef tea or milk and lime-water.

The febrile excitement is to be kept thoroughly controlled by tincture of aconite, veratrum, and sweet spirits of nitre, one teaspoonful of each added to four ounces or half a tumbler of water. From half to one teaspoonful administered every hour according to the age of the patient, and as soon as heat, pulse, and respirations are normal, every two, three, or four hours. If breath is offensive, give a tablespoonful of brewers' yeast in half a tumbler of sweet milk twice daily. As soon as fever abates, administer some good tonic, as port wine and Peruvian bark, one ounce of the bark to a pint of wine, or the wine bitters in tablespoonful doses thrice daily.

As recovery progresses, the diet should be generous, so as to keep up vital power. Any complications should be carefully guarded. It is our mildest type of fever; nevertheless, its urgent symptoms should be promptly relieved, as some cases by improper care merge along into typhoid.

GASTRIC FEVER.

So called, because it is induced by a shock to the stomach.

It is caused by anything that will irritate the stomach of a child, as pastry, cabbage, nuts, candies, or alcohol.

There is a period of prostration, during which the child suffers from languor, lassitude, debility, nausea, vomiting, followed by rigors and a fever, in which the predominating symptoms are nausea, vomiting, pain over the region of the stomach; acid or fetid breath, white-coated tongue are always present.

Its duration is from seven to fourteen days, and if properly treated terminates in recovery.

It is easily recognized by its history, derangement of stomach, nausea, vomiting, white coat on tongue, irritation of brain, and the entire absence of any other type of fever, and that it is peculiar to children.

Treatment.—As soon as recognized, give the little sufferer an emetic. The peculiar shape of a child's stomach enables it to vomit easily and effectively. To very young children the wine of ipecac, to those more advanced in years an infusion of lobelia. In all cases precede the emetic with drinks of tepid water with bicarbonate of soda, so as to neutralize the acid secretions of the stomach and permit of an easy absorption of the

emetic, and a thorough washing out of the stomach; follow this with a warm alkaline bath, then give a teaspoonful of the neutralizing mixture every hour until a free movement of the bowels is obtained. While pursuing the above treatment, aconite, veratrum, and sweet spirits of nitre should be given as in the preceding fever.

If there is still a disposition to nausea or vomiting, apply a plaster made of pulverized cloves, allspice, and capsicum moistened with vinegar, over the region of the stomach, and give milk and lime-water in very small quantities every two hours, for diet. Give the stomach all the rest possible; as a drink, boiled water on toast or crackers, or barley-water.

Several days after the fever has entirely disappeared is the proper time for tonics, as the wine bitters, elixir cinchona, sulphate cinchonine.

Otherwise, the treatment should be the same as for fevers generally, especially insisting upon rest in the recumbent posture, and sponging the body thrice daily.

SIMPLE BILIOUS FEVER.

A fever induced by a shock to the liver.

Its common causes are blows, dress irritating the liver, poison in blood, as syphilis, and mercury; eating or drinking excessively of carbonaceous food or drink; passion.

• The ordinary symptoms are prostration, in which we have languor, lassitude, debility, nausea, vomiting, brown-coated tongue, yellow skin, pain perhaps over the region of the liver or in the shoulder, constipation or diarrhœa, with rigors and fever, the yellowness of the skin increasing and heavily tinging the white of the eye, with dullness, stupor, coma, and itching of the skin.

Although this simple form is not regarded as serious, still grave doubts may be entertained regarding it if the fever is high and jaundice heavy. So by all means let the treatment be active: an emetic of equal parts of composition powder and pulverized lobelia, preceded by copious alkaline drinks, best given in small doses, say every five minutes, until free emesis takes place, then an alcoholic vapor bath, followed by an active purgative acting chiefly upon the liver, such as mandrake and cream of tartar, or, if the patient is feeble, phosphate of soda or white liquid physic. This acts well as an aperient. It is mild in its action, rarely disagrees, brings away an immense quantity of bile, such as we are unable to obtain by any other cathartic. The patient kept in bed, fever controlled by aconite, veratrum, gelsemium (green root tincture), and sweet spirits of nitre, one teaspoonful of each to half a tumbler of water, of which one teaspoonful should be given every hour till febrile symptoms abate. Over the liver and stomach, hot packs of water

highly acidulated with nitro-muriatic acid, renewing frequently. The daily sponging of the entire body with an alkaline wash must not be omitted. Diet, milk and lime-water, arrow-root, and other farinaceous articles.

Then the principles of treatment are to stimulate the liver with nitro-muriatic acid, five drops thrice daily, in water, or an infusion of the fringe tree or wahoo, or leptandra, or kurchicine; keeping the bowels open twice a day with phosphate of soda or cream of tartar, in the form of a lemonade; establishing convalescence upon tonics and generous diet.

INTERMITTENT OR MALARIAL FEVER, OR AGUE.

Characterized by febrile paroxysms, which come on at a definite or specific time, ushered in by a rigor, followed by a fever, ending in a critical sweat, and during the intermission or remission there is an interval of apparent good health, but at the end of a definite interval the phenomena are repeated, and this occurs again and again until a cure is effected.

Cause.—The spore or germ of decaying vegetable matter, acted on by solar heat exceeding 75° or 80° Fah., becomes active. The germs may come from a marsh, or soil, or stagnant pool, or the surface of the ground, or impregnate the water drunk.

Whether the germ enters the body and is capable of growth and production therein (sprouting, growing, and seeding), and causing grave changes in the blood and vital organs, or whether the germ or poison in a special and peculiar manner changes or degrades normal living matter into a diseased malarial germ, it is impossible to say. It is not regarded as contagious or infectious, like its twin sister, yellow or relapsing fever, although this is doubtful. No germs but bacteria and a much diffused spore have been detected in the blood with the microscope, still there is a body which when taken into our bodies and those of animals is capable of producing grave pathological changes and even death. What it is we cannot tell; all we can say is, vegetable decomposition is the source of the poison. From these organic elements are evolved spores which are ponderable, because those who sleep on the ground or lower rooms of dwellings are more readily affected. Fires destroy them, hence large cities, as a rule, are exempt from the presence of the poison. Certain trees that possess in their roots, bark, leaves, flowers, medical properties capable of annihilating the germ in the human body, have also the faculty while in a state of growth of attracting and appropriating the poisonous or diseased germ elements to their own use or nutrition—all the malarial germs in their immediate vicinity. When planted in a deadly malarial swamp they attain an

immense growth and free the locality from the least vestige of the poison; such trees as the eucalyptus, magnolia, willow, &c.

The search for the malarial germ, the *contagium vivum* of malarial poisoning, has engaged the attention of the entire medical profession and appears to be successful. The seeding or cropping of the germ during the attack is a settled fact, as it has been seen in the blood of patients suffering from the disease. Besides the ordinary bacteria so numerous in this fever, there are special micro-organisms variable in number according to the type of fever, that bury themselves in the red corpuscles of the blood, and on the beginning of an attack the spores grow and sprout with great vigor. They are invariably present in the blood of malarial patients. The red corpuscle is the habitat of the germ. Here it develops and can be seen as a round spot on the corpuscle, which it pierces. The rate of growth is immense—millions in an hour. The dull, drowsy, comatose state is due to the breeding of those parasites in the cerebral capillaries; they perfectly demoralize the red globules, and they are so numerous that a total obstruction of the circulation often takes place; they destroy the red discs, which explains the remarkable anæmia often present.

The characteristic of this form is its periodicity—its paroxysms occurring at longer or shorter intervals, but with definite precision, most frequently recurring every twenty-four, forty-eight, or seventy-two hours. When the paroxysms occur at the same hour every day, the fever is called *quotidian*; when every other day, *tertian*; and when absent for two whole days and then recurs, *quartan*. In the *quotidian* the interval is twenty-four hours; in the *tertian*, forty-eight hours; and in the *quartan*, seventy-two hours. The period between the termination of one paroxysm and the commencement of the next is the intermission. In the *quotidian* form the paroxysms occur for the most part in the morning; in the *tertian*, at noon; in the *quartan*, in the afternoon. Besides these forms, we meet with cases occurring once a week, once a month, once a year. Any type may be double, that is, occurring twice during its specified time.

Symptoms.—This fever may set in suddenly, or it may come on gradually with a feeling of general indisposition, which at the end of a few days may culminate in a regular paroxysm. An ague fit is composed of three stages, the *cold*, *hot*, and *sweating*. The cold stage is ushered in with feelings of languor, lassitude, debility, headache, pain in the back and limbs, chilliness. There are sensations as of cold water running down the back; shivering; the skin is shriveled and the papillæ rendered prominent, the skin assuming the appearance of a plucked goose (*cutis anserina*), resulting from irritation of the nerves that supply the microscopical muscles of that gland,

which are called *arrectores pilorum*. The teeth chatter, the nails turn blue, and the whole body is shaken; there is exhaustion, often urgent thirst; the countenance is anxious; the features contracted; eyes dull and sunken; pulse feeble; respiration hurried or oppressed; mental irritability. The duration of this stage varies from a few minutes to several hours, and is succeeded by the hot or febrile stage.

Then all the symptoms of fever are well defined: increased respiration; more frequent pulse; elevated temperature; parched mouth; excessive thirst; painful sense of fullness in the head; great restlessness; irritability; delirium.

This stage may last a short time or for some hours. Then follows the sweating stage, beginning with a slight moisture on the forehead, then over the entire body. After its decline, all the symptoms become ameliorated, and the patient to all intents and purposes seems to be in perfect health until another paroxysm takes place.

Sometimes one or two of the three stages are absent.

Malarial germs are taken into the human body by the skin, bronchial mucous membrane, but especially by the salivary glands of the mouth, swallowed, and thence taken up into the circulation. Food and water may also supply them. When they get into the circulation they produce the following toxic results:

1. More or less irritation of the brain, according to the amount of germs present and power of vital resistance.

2. A blood-disease is engendered—that fluid is loaded with bacteria and malarial germs, and as they increase in number it becomes fibrinous or clotty, and dark colored. Such blood coagulates readily in the fine, delicate interstitial structure of the brain, in the granulated structure of the liver and kidneys, in the very vascular structure of the spleen, and even adheres in masses to the walls of arteries. When this condition has lasted months or years, a white-cell condition or leucocythemia is brought about.

3. This white-cell disease of the blood is properly the third stage, and is brought about by the malarial germ using up in its own nutrition the elements of the red corpuscles, aided by the morbid condition of an enlarged, indurated, or caked, or hypertrophied state of the spleen or an amyloid degeneration of other glands. This fever is easily recognized by the paroxysms occurring with periodicity, being ushered in with rigors, followed with fever and a sweat. During the remissions an interval of apparent good health, but at the end of a certain interval the phenomena are repeated.

The Morbid Conditions are irritation of brain, liver, kidneys, spleen, with blood loaded with living disease-germs.

In all forms of shock there is a determination of the capillary circulation to the internal viscera; the spleen, the safety-valve of the heart, suffers most, as the blood is driven inward. True, the congestion subsides during the intermission, but repeated attacks with the peculiar bacterial blood give rise to hypertrophy and induration.

Treatment.—In the general management of this fever, the patient should be well nourished with good food; clothing warm, and rest in the recumbent posture inculcated. During the cold stage the patient should be carefully nursed, the feet immersed in hot mustard and water, and warm drinks of an infusion of boneset, or capsicum, or composition should be taken freely, and external warmth by hot bricks and bottles of hot water wrapped in flannel applied all round the body, and well covered with blankets.

As soon as the fever appears they can be removed, and cooling drinks administered, the body sponged with tepid water, and two drops of tincture of aconite and veratrum given every hour as long as the fever lasts. When the hot stage subsides into the sweating, the action of the skin should be slightly stimulated by allowing the patient to drink freely of an infusion of boneset. During the interval the attack of fever must if possible be broken up. For this purpose an emetic of equal parts of lobelia and composition should be administered, preceded by copious drinks of tepid water and bicarbonate of soda. One teaspoonful of the pulverized gum lobelia and the same amount of composition to half a pint of tepid water—a wineglassful every five minutes. Lobelia has a retrograding action on disease-germs, and reduces their activity. This should be followed by an alcoholic vapor bath, after which, if the intermission permits, an active cathartic of white liquid physics. At this point there must be made a selection from two classes of remedies, one that acts chiefly on the nervous system, in producing a quasi suspension of its vital activity, which class is represented by quinine, green root tincture of gelsemium, salicin, &c.; the other, which acts directly on the germ in causing its destruction in the blood, such as tincture of iodine, eucalyptus.

If we make our selection from the first class, our most important remedy is quinine. It probably acts on the malarial germ by diminishing oxidation, impairing the oxygen-carrying powers of the red blood-globules and suspending vital activity. For the purpose of being at once effectual, it is useless to give it in small doses at long intervals. One large dose should be given at once, or if in divided doses, at short intervals. The sulphate dissolved with a few drops of aromatic sulphuric acid forms a bisulphate, so that five grains are equal

to ten when so dissolved. Now it is impossible for us to say the special dose, whether it be ten or twenty grains; if a bad case let it be large, dissolved in water and followed in fifteen minutes with half a teaspoonful of green root tincture of gelseminum. In half an hour, if thought best, they both could be repeated. If the chill and fever are aborted the first time, which is likely, the remedies should be given at the same time each day, in smaller doses, for several successive intermissions, so as to be certain of the result.

Of the different preparations of salicin, salicylate soda, given in large doses, has a powerful effect and acts rapidly, but is very apt to cause prostration or failure of the circulation. The second class of remedies are those that destroy the malarial germ in the blood, such as tincture of iodine, eucalyptus, &c., and must be administered right along. The tincture of iodine, from ten to twelve drops in half a glass of sweetened water or sweet milk, every four hours, is equal to quinine. Indeed, the results are highly satisfactory, so much so that it may be regarded the best remedy; at any rate it is an excellent substitute, acts in some cases almost as by magic. In many instances the paroxysms are not repeated after the medicine has been given two or three days.

The fluid extract of eucalyptus prepared by compression, given in teaspoonful doses every four hours, or the oil in ten to twenty drop doses, dropped on sugar, will succeed in some very mild cases.

In cures effected with the quinine and gelseminum, or the tincture of iodine, the patient should be kept upon a good tonic for several weeks subsequent to recovery.

In order to show the utility of remedies in the cure of this sometimes stubborn affection, we append a few formulæ that are sometimes used in chronic cases:

Take of sulphate of quinine, twenty grains; prussiate of iron, twelve grains; solid extract of gelseminum, one grain; solid extract of mandrake, three grains; capsicum, twenty-five grains. Mix.

Make six powders, and give at suitable intervals so that the patient takes three before the chill. The same prescription can be made into pills by adding twelve drops of the oil of black pepper, making it into twenty pills; the patient taking six at proper intervals before the chill.

The following operates well:

Glycerine, four ounces; tincture of iodine, half an ounce; oil of eucalyptus, half an ounce. Mix.

A teaspoonful every four hours in sweetened water.

The following answers well:

Port wine, one pint; sulphate of quinine, one drachm; aro-

matic sulphuric acid, half an ounce; pulverized cinchona, one ounce; capsicum and cloves, of each, a tablespoonful. Mix.

One to two tablespoonfuls every three hours. In preparing the above, dissolve the quinine separately with the aromatic sulphuric acid, then add to the wine. It is unnecessary to shake up when used.

We have found the following often succeed :

One ounce each of pulverized cinchona, cream of tartar, and cloves. One teaspoonful every two hours.

There are a very large list of remedies in use, most of them quite worthless, as sulphate of bebeerine, chinodia, quinquina, dextro-quinine, bisulphate of quinine pills, which, if gelatine-coated, are very reliable; salicine, cornia, boneset are worthless.

A hypodermic injection of one or two grains of sulphate of quinine in solution half an hour before the chill, is very efficacious in its arrest.

After the breaking of the chill, the patient to be placed upon teaspoonful doses of Huxham's tincture of bark for a few weeks.

The above treatment is usually sufficient for the first stage; in the second, where the blood is heavily loaded with bacteria and malarial germs, there must be antiseptics administered in addition, and those of an alkaline character should have the preference, because they act best on the liver. Chlorate potassium in five-grain doses, thrice daily; or permanganate potassium, half-grain doses; or muriate or sesquicarbonate of ammonia, sulphite of soda, phosphate of soda, either in five-grain doses. One of the above selected and given at regular intervals in water. They are nearly all of equal value. The treatment in the first stage must, in addition, be carried out.

In the third stage, where we have the red discs greatly deficient and the white corpuscles in excess (see Leucocythemia), the blood thoroughly disorganized by the destructive action of the two germs, malaria and bacteria, years will be necessary for a cure, during which time alteratives and tonics, generous diet, country air, flannel clothing, and all known means of promoting a high standard of health should be resorted to.

It requires great perseverance on both the part of the patient and physician, but hold on, do not deviate, stick firmly to alteratives and tonics with best of diet and regular bathing, and a cure will generally be effected, unless the spleen is irretrievably softened.

REMITTENT FEVER.

This fever bears a strong resemblance to intermittent in its cause, but is more serious in its effects. It occurs in the form of a continued fever, characterized by remissions. There is no

cessation of the fever, simply an abatement or diminution. The period of remission varies from twelve to twenty-four hours, at the end of which time the feverish excitement increases, the exacerbation being often preceded by a chill.

The cause is the malarial spore or germ acting upon vital forces already exhausted.

Remittent fever varies much in severity, according to the vital forces or peculiarities of the individual affected; the locality has less to do with the peculiarity or type than the individual, for the germ or contagion is the same, hence the idea of describing it under the names of localities is absurd. But if we have a germ from a river-bed (paludal), as well as a malarial, present, it is very apt to take on a strong bilious or even a malignant type.

Symptoms.—Usually commences with languor, lassitude, debility, mental depression, headache, shivering followed by high fever, vomiting, sometimes jaundice, often accompanied with delirium; pulse frequent and full; tongue dry and furred; nausea, vomiting, generally of bilious matter; sense of pain at the epigastrium, and tenderness on pressure, with signs of pulmonary congestion, great difficulty of breathing, a feeling of oppression at the chest, cough, and a livid color of the countenance. The urine is usually scanty, high-colored, and loaded with lithates, but passed in increased quantities during the remission. Length of remission varies from six to twelve hours and from twelve to twenty-four hours; at the end of which time the feverish excitement increases and the exacerbation is usually preceded by chilliness and a rigor. Remission usually occurs in the morning; the principal exacerbation is generally towards the evening. The disease may run on for some fourteen or fifteen days and end in an attack of sweating, or merge into typhoid or cerebro-spinal meningitis. The period of convalescence is usually short, except some organic mischief has occurred, in which case considerable time may elapse before a restoration to health is effected, the debility being kept up by night-sweats, sleeplessness, dyspepsia, neuralgia, jaundice, and dropsy.

Complications.—The extreme severity of some cases, the depressed condition of the nervous and vascular systems, with defective secretions, the great exhaustion at the termination of a paroxysm, collapse, convulsions, or delirium, passing into drowsiness and coma, cerebro-spinal irritation, with gastric irritability, or with bronchitis, pneumonia, or with hepatitis, jaundice, diarrhœa, or typhoid symptoms. The chief causes of the complications are great depression of vital power, with epidemic influence and improper treatment.

As a rule the fever terminates in recovery in two weeks or some of its numerous complications.

The diagnosis is important: a continued fever with remissions, when complications arise, other morbid states taking place, the points of recognition may be varied.

Treatment.—Begin with an emetic of equal parts of green lobelia and boneset in infusion, preceded with copious drinks of tepid water and bicarbonate of potash; thorough emesis; subsequently an alcoholic vapor bath; then unlock the bowels with an anti-bilious physic; then rest in bed, and the general treatment for fever. It must be borne in mind that the febrile exacerbation is of longer duration and of greater intensity than in intermittent, so there is more danger of structural lesion of brain, liver, spleen, stomach, and kidneys, and our first great object should be to effectually equalize the circulation and moderate the excitement with a mixture composed of four ounces of water to which is added one teaspoonful of tinctures of veratrum viride, aconite, green root tincture of gelsemium, and sweet spirits of nitre, one teaspoonful every half-hour until all febrile excitement has become ameliorated and the pulse down to seventy. Then begin with remedies to destroy the germ. For this purpose it is best to resort to a combined treatment of the two classes of remedies, so as to break it up. So that it is well to give quinine, either with prussiate of iron, or in the form of a bisulphate, that is, dissolving it with aromatic sulphuric acid in from one grain to several, every four hours, and alternately to give the tincture of iodine in ten-drop doses between, in sweetened water, holding the heat, respirations, and pulse in absolute control by the veratrum and gelsemium. Keeping the liver well stimulated with phosphate of soda, or white liquid physic. If there be diarrhoea and restlessness, then teaspoonful-doses of the following could be used:

Compound syrup of rhubarb and potassium, four ounces; bromide of potassium, half an ounce; bromide of ammonia, a quarter of an ounce; chloral hydrate, half an ounce. Mix.

The diet should consist of milk and lime-water, beef tea, or farinaceous food. Complications looked for and carefully guarded. If there seems to be much cerebral disturbance, active purgation, mustard to feet, head shaved, and evaporating lotions of camphor-water and ammonia applied. If there is low delirium or exhaustion, or cerebro-spinal irritation, dry cups followed by mustard poultices to nape of neck.

In our Southern States, both intermittent and remittent fever are often complicated with hæmaturia, or a hemorrhage of blood from the kidneys, to arrest which the treatment laid down must be adhered to, the dose of the gelsemium increased, and dry heat by means of hops, or chamomile flowers baked in an oven and applied in small bags over the region of the kidneys. General treatment for fever carried out.

The Bilious Type of intermittent and remittent requires very nearly the same treatment. In these the force of the malarial and bacterial germs seems to be spent upon the liver, so that in those cases the tongue is heavily coated brown, there is nausea, vomiting, jaundice, diarrhœa, and other bilious symptoms,—a state that will require special attention in addition to the treatment being carried out for the fever, such as the following: five drops of nitro-muriatic acid every four hours in water, or an infusion of leptandra, drunk freely, or phosphate of soda.

Some remedy to act efficiently upon the germs that block up the liver, managing the fever in the manner already indicated.

REMITTENT BILIOUS FEVER, MALIGNANT.

In terribly shattered individuals, the simple form is prone to assume this type. The heat here is high, the pulse very frequent, indeed, all febrile symptoms reach their greatest intensity, the skin is jaundiced, the stomach irritable, the tongue is not only heavily coated with a brown coat, but it is black or dark-colored at the root, the brain poisoned, all the symptoms indicate extreme prostration from the action of the poison, with blood-poisoning.

Treatment the same as in remittent, but more energetic remedies in larger doses and antiseptics must be freely administered. One tablespoonful of brewers' yeast twice daily in sweet milk, or from five to ten grains of sulphite of soda, thrice daily, or sulphurous acid in water. Some one selected capable of destroying the germ, the factor of the fever, one capable of arresting molecular change, or the tendency to putrescency or corpuscular death is great.

Bilious and malignant remittent fever requires in all cases the greatest tact and skill; nothing should be omitted. If the veratrum and aconite are not sufficient to equalize the circulation, larger doses of the green root tincture of gelsemium should be given every half-hour until the circulation is controlled, keeping up the quinine and prussiate of iron in alternation with the iodine. The dose of drugs must be increased to meet the condition of vital depression and malignancy of the attack, and on no account are antiseptics and stimulants to be spared, for we must ever bear in mind that the factors of the fever are the germs.

RELAPSING FEVER.

Relapsing fever, or recurrent fever, or malignant remittent fever, highly contagious and infectious. There is a febrile excitement all the time, but the remission and relapse takes place every five or seven days, when there is an immense

aggravation of all the symptoms. Epidemics have appeared at different times in the world's history, chiefly during seasons of famine and destitution, which has led authors to describe this fever under various names.

The cause is the malarial germ, whose presence in the body is probably intensified by animal miasma.

Symptoms.—There is generally a latent period of three or four days, during which the patient suffers from prostration, headache, languor, lassitude, debility, followed by rigors and a high grade of fever. The frontal headache and muscular pains, with pains in the back and bones, are so excruciating as to cause great restlessness and irritability. Temperature often 107° Fah., with a pulse over 160, urgent thirst, often nausea, vomiting, pain in the stomach, jaundice often present. A very great aggravation of symptoms at night, giving rise to much irritability and sleeplessness. As the disorder advances there is constipation, scanty, high-colored urine and increasing prostration; but just as the fever seems to be assuming a threatening aspect, about the fourth or fifth day, a profuse perspiration breaks out over the whole body, a complete subsidence of fever takes place, the patient appearing quite well, but weak or suffering from rheumatic pains. The patient, and often inexperienced physicians, imagine the trouble is over, when all of a sudden, about the fifth or seventh day, there is a relapse, a repetition of all the symptoms in an aggravated form. Graver, more alarming, week by week this goes on, each attack leaving the patient weaker and weaker, till on the sixth or seventh week he either succumbs to the poison or the case terminates in recovery. Troublesome complications often arise which delay recovery, such as petechia and purpuric spots, muscular weakness, œdema of the legs and feet, prostration. When it occurs in pregnant women, it has a greater tendency than any other disorder to cause premature labor. It is a very fatal form of fever, death taking place at any period from sudden prostration. No special lesion can be detected upon making a post-mortem examination. The liver seems to suffer most from enlargement and congestion; in other cases the spleen is found considerably increased in size.

The treatment is in all respects similar to that laid down for typhoid.

TYPHOID FEVER.

Is essentially a contagious and infectious fever, capable of spontaneous development when the living matter of the nervous system is degraded. In the blood, the blighting of nerve nutritive matter can be detected to some extent in any nervous shock, but it is immense in depression of the great sympha-

thetic and ganglionic nervous system. Indeed, typhoid fever may be regarded as the climax of all nervous depression, capable of spontaneous germination within the body by great nervous depression, or disease, or by the intense struggle for existence incidental to civilized life.

Wherever the nervous system is developed at the expense of the physical, there is a predisposition to this form of fever.

It is caused by a degradation of the bioplasm concerned in nervous nutrition, and any condition of nervous depression may cause the change from normal nerve bioplasm into a disease-germ vibrios, and when once engendered the contagion is so active, or powerful, that it may be communicated by close contact in cars, through the air, water and food, by sewer gas, or effluvia from drains and cesspools, by sewage in rivers containing typhoid stools. Milk, or raw or even cooked flesh of animals or fowls coming in contact with the vibrios in the air may communicate the disease. Contamination of drinking water by sewers is one of our chief vehicles of propagation. For when the vibrios enters the sewer, and then the lake or river, the germs become very active, and acquire a power or potency incomprehensible.

It is true the predisposing cause is nervous prostration, which in itself may be sufficient to cause the necessary degradation of bioplasm, the vibrios; among the most prominent of those causes, mental strain or exhaustion, depressing climatic states, solar heat, chills, damp, overwork. In the large class of nervous diseases, the vibrios are so prolific that they emanate from every part of the body, and are to be found in or on everything in close proximity to the affected person.

Those mysterious languors, headaches, lassitudes, &c., unclassified, unnamed, and often unpitied, which distress patients and puzzle physicians, are simply the presence of this germ in the blood, for it can only find its abode in the weak, feeble, or shattered.

Symptoms.—Usually a period of incubation or germ-growth varying from ten to fourteen or even twenty-one days, in which languor, lassitude, debility, insidiously make their appearance, with headache, white face, sharp features, pain in back and calves of the legs, nausea, diarrhœa, and chilliness. The rigors recur from time to time at uncertain intervals, with an aching all over. The rigors increase, and the patient is much prostrated. There may be vertigo, deafness, or epistaxis; great headache; intolerance of light; thirst; loss of appetite; great nervous irritability; restlessness; nostrils pinched; often a marked, circumscribed flush on each cheek; tongue at first white, with red edges and tip, later red and glazed, buff dry or brown; sordes on gums, pulse small, wiry, frequent, 100 to

120 or higher; temperature from 101° to 104° Fah., higher in the evening; breath offensive and ammoniacal. These symptoms slowly become aggravated; emaciation is great from the destructive action of the germ and imperfect renewal of tissue; continuous destruction—defective supply. The solid constituents of the urine increase; the tendency to diarrhœa becomes greater; great interstitial death; rapid metamorphosis of the entire body.

At the commencement of the second week, or a day or two earlier, the typhoid rash appears; rose-colored spots on the chest and abdomen, few in number, circular, disappearing on pressure, and fading away to be replaced by a fresh crop. In ten or twelve per cent. of cases, no rash. It is a true petechia. After the middle of the second week, tympanitis, gurgling in the right iliac fossa on pressure, diarrhœa, stools alkaline, of a pea-soup appearance. If there is extreme debility with profuse sweating there may be sudamina, or small watery blebs on neck, chest, or abdomen. There may be other symptoms present, as violent delirium, spasmodic contractions of the muscles, picking at the bedclothes, subsultus, hiccough, tinnitus aurium or deafness, muscular pains, prostration, bed-sores, and attacks of hemorrhage from the ulcerated patches in the ileum and perforation of the bowel, with fatal peritonitis, is to be found. Congestion of the kidney, cerebral or pulmonary complications; the latter is the most common and most to be dreaded, and is easily recognized by the flush on right cheek; cough, rusty sputa, dullness on percussion at the base of the right lung. During convalescence a venous murmur can be detected in the neck, and an inorganic systolic bruit in the heart, same as in anæmia, which quickly disappears on giving nourishment.

Duration should be from two to three weeks; still, some cases are prolonged to the fifth or sixth week.

It may terminate in recovery, paralysis, or death. Death is usually due to exhaustion from the protracted fever, or from diarrhœa; sometimes to pulmonary and cerebral complications, or to perforation of the bowel and peritonitis, or to hemorrhage; occasionally to uræmia. In some cases the patient seems to be overwhelmed by the poison-germ and dies easily with cerebral symptoms, delirium, and coma. When recovery takes place with paralysis, it is generally due to anæmia, which, in nearly all cases, can be overcome with good diet.

A persistent rise in temperature over 105° Fah. is very unfavorable, and several degrees above, an almost fatal result.

Typhoid fever is easily recognized by its insidious mode of attack, by the nervous prostration, by the ringing in the ears or deafness, bleeding at the nose, rapid emaciation, white, sharp-pointed features, sunken eyes, and pinched nostrils; dry,

buff-leather tongue, red tip or edges, or smooth and glassy; sordes on teeth and gums; small, wiry, frequent pulse, irritation, inflammation, and ulceration of the glands of Brunner and Peyer of the small intestine; with tympanitis, gurgling in right iliac; diarrhœa, petechia, sudamina.

It bears no analogy or resemblance to typhus,—in no single point. Pathologists are agreed upon one point, that there is nothing in common. In typhus fever the poison or fever germ is bacteria; in typhoid, the disease-germ vibrios,—a specific disease-germ, a true contagium vivium, having properties as distinct and powers of reproduction as perfect as any germ or species known to botanists and zoologists.

The appearances after death are most significant: the blood and all the tissues and glands are loaded with vibrios, congestion of the brain or its membranes, ulceration of œsophagus and stomach, enlarged or friable condition of the spleen. The two lesions that are invariably present are inflammation, and ulceration of the glands of Brunner and Peyer. The alterations in the aguminated glands or Peyer's patches are the most marked in the group of glands which are nearest to the ileo-cæcal valve and in the corresponding glands of the mesentery. Frequently the patches have undergone ulceration. If the case has terminated at an early stage through prostration, we may simply find congestion, or a swollen condition of the mucous membrane over the patch or gland. Death, as a general rule, occurs at a later period, toward the ninth, tenth, or eleventh day, or at the end of the third week, and then we find the true condition of ulceration, in ulcers or sloughs varying in size. These ulcers are often the cause of death, either by hemorrhage or perforation. Mesenteric glands in the neighborhood are generally enlarged and softened. The enlargement of spleen and left kidney is decided.

The following are good rules to observe or bear in mind after death: Peyer's patches and the solitary glands of the lower part of the small intestine are always affected in typhoid fever, and the solitary glands in the large intestine in about one-third of the cases; that ulceration is perfect on the seventh, eighth, or ninth day of fever; that cicatrization begins in from two to three weeks, but may be delayed indefinitely or prolonged by disturbance, as movement and diarrhœa.

To prevent typhoid, our population must guard against overwork, privation, sorrow, and maintain a high grade of vital force. All unsanitary conditions avoided, good drainage, the excreta in cesspools destroyed, and above all good water supplied,—no sewerage to enter drinking water, nor no cesspool deep in the earth nearer than a mile to a well, and care exercised during convalescence. The patient should not for three months

be permitted to go among his fellows, as he is liable to disseminate the disease.

Treatment.—As the strain upon the mind in our country is incessant,—physical and mental overwork common, civilization of that kind that rapidly wears out the nervous system, the degradation of the living matter into the disease-germ vibrios is very common, so much so that typhoid fever may justly be regarded as our national fever, the one truly indigenous to our people.

The very instant it is recognized, the affected individual should be placed in bed, and caused to maintain the recumbent position. The apartment in which he is placed should be well ventilated, and, if possible, not connected with others: there ought to be an open fireplace, and if the weather permits a fire; there should be no bed or window-curtains, nor carpets, nor superfluous furniture in the sick-room; a disinfectant of some kind should be freely used and exposed in the apartment. Two beds are of great utility, so that the patient can be lifted from the one to the other, and the bedclothes, as well as the body-linen, changed daily, and strict quarantine maintained, few but the nurse and physician admitted. No food left uncovered.

Suppose we see this case early and recognize it beyond the possibility of a doubt, either during the so-called stage of incubation or germination, or even as late as seventy-two hours after the rigor, an effort at breaking up the fever is worthy of a trial. It is often successful on the following plan: Dry cups applied on both sides of the spine and over the solar plexus in the abdomen; follow with a gentle but stimulating emetic of lobelia and capsicum, preceded by copious drinks of tepid water and bicarbonate of potassa,—the emetic to be given in small doses untill free vomiting takes place; follow with an enemata, and as soon as that has acted, an alcoholic vapor bath for twenty or thirty minutes; then the patient to be placed in bed, heat to feet, and the following ointment to be rubbed in over the discoloration produced by the cups: Vaseline, two ounces; hydrate of chloral, a quarter of an ounce; camphor, half an ounce; and the tincture of the green root of gelsemium and sulphate of quinine administered internally. In the use of the two drugs there must be great discretion and boldness. What we want in as short a time as possible is the full physiological effect of both remedies. The advantages of the tincture of the green root of gelsemium are, it is safe, it exercises a peculiar retrograding action on germ matter, has a good effect on the vaso-motor system, stimulating the vagus, and thus slows the heart, at the same time dilating the capillaries. It should be given in half-teaspoonful doses, repeated every half

hour. The next remedy is quinine, which diminishes oxidation and aids in the elaboration of red corpuscles, at the same time producing a cerebral state called cinchonism, unfavorable for germ-growth. The quinine is so freely and rapidly eliminated by the kidneys that a grain or two of pulverized opium should be given with it, so as to prevent its escape. For our purpose the quinine must be given in large doses, or three smaller ones inside of half an hour, and not less than twenty, thirty, or forty grains in all; the opium not to exceed one or two grains; the gelsemium carried up to double vision and profound muscular relaxation. Sleep, narcotism, anæsthesia follow for ten or more hours, during which time the germ dies in the body, and the patient makes a speedy recovery. This principle of obtaining the death of a germinal poison is difficult to explain, but practically it operates well in aborting the fever. It is a method with which I have had great success. After the third day I deem it of no utility, as grave changes take place rapidly. One thing is certain, that it can in no way interfere with the subsequent management of the fever.

Suppose the fever progresses, or that we have seen it too late, then general principles of treatment should be carried out. Patient sponged three times daily with an alkaline wash, well dried, and rubbed with the dry hand of a young, vigorous nurse. After the mid-day sponging, warm vinegar and water should be used, as the acid excites the normal alkaline secretion of the skin and destroys germs on its surface. After the evening bath, inunction of warmed olive oil into the entire body; it attracts and smothers germs, by endosmosis it promotes nutrition, and if performed by a young, healthy nurse, its reflex effect upon the nervous system is of a very vitalizing character. Heat to feet, and hot poultices of linseed meal and glycerine to the abdomen all through the fever. The dietetic management should be attended to with great care. Suppression of the salivary and pancreatic secretions interferes with the digestion and assimilation of starchy matters, and if given, become irritants to the intestinal tract, so that milk and lime-water, with beef tea, forms the best diet. Stools, when passed, should at once be disinfected by a solution of sulphate of iron.

Febrile action should be controlled with two or three drop doses of tincture of aconite every hour or less frequent, and if necessary an occasional drop of *veratrum viride*. Small doses of quinine should be given all through the fever, one ounce of aromatic sulphuric acid to thirty grains of quinine. Mix. Fifteen to twenty drops three times a day. Diarrhœa in all cases to be controlled by half a grain of pulverized opium to one of tannic acid in a pill, or by boiling the milk used for food with cinnamon sticks, straining, and then adding lime-

water. Sleep is of great importance, as there is no nutrition without it, so if the patient does not sleep, anodynes must be given. A hop pillow might be tried. If that fails select one of the following:

English extract of hyoscyamus, solid, twelve grains; pulverized opium, two grains; sugar of milk, thirty grains. Mix.

Make twelve powders; begin at 6 P. M., and give one every hour or two hours till sleep is procured. Repeat every night if they operate favorably. If they do not seem to answer well, then try

Camphor water, two ounces; bromide of potash, half an ounce; chloral hydrate, sixty grains. Mix.

Give a teaspoonful every two hours. If the above does not procure long, refreshing sleep, then use the following:

Cinnamon water, four ounces; sulphate morphia, four grains; bicarbonate potash, fifteen grains. Mix.

One teaspoonful every hour. Thirst in typhoid is best allayed with a few drops of dilute phosphoric acid and water, or ozone water. If there is rapid emaciation there can be no doubt of the propriety of arresting the metamorphosis by the administration of alcohol, otherwise it is of no utility.

Antiseptics or germicides are all-important in typhoid—powerful in the destruction of the germ. By the use of antiseptics, destroying the germ, we kill the main factor of the disease and give the vital forces a chance, a preponderance to the side of recovery. The great factor here is the germ. Kill it as fast as evolved, and thus obviate the injurious effects that are likely to arise from its action on the blood. Indeed, the intensity of symptoms is not only modified or ameliorated but abrogated by its destruction. The febrile action in typhoid is in direct proportion to germ-growth. Even in our dietetics we retain the idea,—destruction of a germ: to the beef tea we add a few drops of hydrochloric acid, and to every tumbler of milk a teaspoonful of lime-water, which not only prevents the casein of the milk from coagulating, but is a germicide in itself. But we select a few out of the number; one must be given regularly to the patient at least twice or three times a day.

Brewer's yeast, one tablespoonful thrice daily, in half a tumbler of sweet milk.

Glycerite of ozone, that great scavenger of diseased blood, thirty drops in water thrice daily.

An infusion of baptisia tincture drank freely.

Chlorate of potassium and dilute muriatic acid, five grains of the former to four drops of the latter to half a tumbler of water, sweetened with sugar so as to evolve the chlorine.

Tincture of iodine and carbolic acid; one drachm of the carbolic acid to one of tincture of iodine, added to fifteen ounces

of distilled water, in which oil of lemons and a little muriatic acid has been dissolved. The addition of the acid and oil of lemons disguises the smell and taste, and obviates any gastric or sensorial disturbance. A tablespoonful should be given every hour until heat, pulse, and respirations are normal; then three times a day, and continue for three or four weeks after recovery.

The old formula of fifteen drops of spirits of turpentine in mucilage of acacia, with a few drops of oil of peppermint three times a day on the ninth, tenth, and eleventh days should not be discarded, as it is highly antiseptic, a powerful ozone generator, and stimulating to the glands of the bowels. Sulphurous acid, a little added to water for a drink is excellent.

The carbolic acid and tincture of iodine every hour, with the glycerite of ozone three times daily, seem to be the speediest remedies in destroying the germs and thus breaking up the fever; besides their potent antiseptic properties, the latter is a nerve and brain tonic of unrivalled power.

Every point must be carefully guarded; for prostration, muttering delirium, and irregular pulse, brandy should be given.

Antiseptics act best on the ulcerated glands of the bowels. At least three times a day the mouth should be washed out with a little wine and water. The bladder must be seen to, lest any suppression of urine take place. Complications should be watched and met vigorously. Guard carefully against pneumonia, which is the common sequel.

Great care should be taken during the period of convalescence, lest the cicatrizing ulcers be irritated; tonics, and a return to general diet to be very gradual. No solid food allowed until all symptoms have disappeared. A tonic course of treatment, aromatic sulphuric acid and quinine, port wine and Peruvian bark, or glycerite of kaphaline administered for some months, and the recumbent posture rigidly maintained.

TYPHUS FEVER.

This fever has a spontaneous origin in the damaged bioplasm of our own bodies, the result of crowding large bodies of human beings together; hence it is described as putrid fever, jail fever, plague, pestilence, malignant, ship, or hospital fever. It may be defined as a contagious and infectious fever; often prevailing epidemically.

So far, in the United States, we have been able to evade the generation of this type of fever; but if the tenement system is carried out we may look for its appearance. When large bodies of children are congregated in schools purulent ophthalmia is often present, which is due to the same poison as typhus.

The cause of typhus is the degraded bioplasm or living matter

of our own bodies, or that of other human beings into the living germ bacteria, which degradation is caused by over-crowding, ill-ventilation, &c.

The usual symptoms are a period of incubation or shock, or sprouting of the germ in the blood from a few days to ten or twelve, during which time there is often bleeding from the nose or deafness, with great languor, lassitude, debility, headache, pain in the back or limbs. Then rigors, headache more intense, dry, heated skin, flushed face, suffused eyes, dull, heavy aspect, stupor, thirst, constipation, and prostration.

Towards evening, irritability and restlessness, with sleepless nights. A measly-looking rash makes its appearance about the fifth day, consisting of irregular spots of a dusky or mulberry hue, at first disappearing on pressure, later forming stains which are not obliterated on pressure, generally very copious; seen best on abdomen, chest and back, but especially over the breasts; spots are often seen on back of wrists. When the rash is very dark colored, the blood has become the prey of the typhus germ, and is disorganized by the abstraction of its oxygen. Skin generally dusky, and besides the rash, often subcuticular mottling rash often remains permanent to the end of the fever, and may be accompanied by or become converted into petechia, sometimes mild, in other cases altogether absent.

During the first week, bleeding at the nose, or deafness, or noises in the ears, conjunctiva injected, often constipation, never diarrhoea. Pulse from 80 to 100 to 160. Temperature 100° to 105° Fah., steady, not variable like typhoid, tongue coated, brown and dry; dullness or stupor, looks like sleep but not refreshing. Urine very scanty in quantity, retention common; often albuminuria; occasionally total suppression of urine and uræmia.

In the second week, great prostration, muscular twitchings, delirium, coma, and convulsions. The danger is greatly increased by an attack or supervention of acute bronchitis, pleurisy, and pneumonia. Often a critical sleep, or sweat, or an attack of diarrhoea, or greatly increased flow of urine. Convalescence is very rapid when it takes place, beginning generally on the fourteenth day. The fatal period is from the ninth to the twelfth day.

Duration is from fourteen to twenty-one days.

This fever is easily recognized by its history: the bleeding from the nose and deafness, the stupor or dullness, constipation, dry brown tongue, congestion of eyes and face, measly eruption when present. The blood is loaded with bacteria, thick, black, and clotty, and when thoroughly disintegrated becomes fluid, and is effused into brain, heart, lungs; besides, the liver and spleen are alive with bacteria.

In order to prevent this fever, the people should be supplied with wholesome food and properly ventilated dwellings; overcrowding in ships, sleeping-rooms, lodging or tenement houses prevented; smaller school-houses, and fewer children congregated together. All houses, or ships, or almshouses, to be kept thoroughly cleansed and whitewashed every three months. The clothes and bedding of any one tainted or affected should be disinfected. The patient kept scrupulously clean; if just convalescing he should not enter a street car or public conveyance. No room, or house, or public place in which an affected person has been, should be reinhabited or occupied until purified with chlorine gas or whitewash, and its walls and floors thoroughly deodorized.

Treatment.—The patient should be kept in bed in a well-ventilated room, free from carpets and curtains—disinfectants used freely; two beds if possible, that he may be changed daily; if the weather permits an open fire should be kept in the apartment.

The strictest quarantine to be maintained, none but the nurse and physician permitted in the apartment. An emetic of lobelia, an alcoholic vapor bath, and bowels opened with an antibilious physic. Then arterial sedatives, aconite, veratrum, gelsemium, administered. Sponging the body three times a day with vinegar and water is not only grateful to the patient but highly destructive to the germs of disease.

The primary action of the bacteria is on the red corpuscles of the blood; they abstract oxygen from that fluid and unfit it to stimulate the nervous centres, and the result is the serious and nervous symptoms which are observable in bad typhus. One great object in treatment is to supply the blood, the element which nature demands, and aid its transmission to the tissues and at the same time destroy the disease-germ with antiseptics. The latter should be commenced early. Among the best are ozone water, chlorate or permanganate of potassium, sulphite of soda, yeast, tincture of iodine, and carbolic acid. Select one and give persistently until there is a manifest diminution of temperature. The utmost benefit is to be derived from this class of remedies.

The sulphate of quinine and tincture of iodine to be administered the same as in remittent fever. If there is coma or sleeplessness, shave the head and apply cloths wrung out of warm water in which sesquicarbonate of ammonia has been dissolved, and give bromide of potassium with chloral as in remittent.

If vital force is low, dark and abundant rash, suffused eyes, wakefulness, delirium, picking at the bedclothes, with signs of collapse, give stimulants, wine and quinine, strong beef tea, or chicken broth; the administration of stimulants every hour,

and nourishment persistent and often. For urine retained, use the catheter. If diarrhœa occurs, it is usually salutary. Liquid nourishment, beef tea and milk, and all through the case either brewers' yeast or permanganate of potassium, thrice daily.

General principles are to be followed in all cases.

During convalescence mineral acids and cinchona, a gradual return to solid food, and country air.

THE PLAGUE.

Black death or glandular pestilence is simply the bacteria of typhus operating upon one whose vital forces are a perfect wreck. It has all the characteristics of typhus, and in addition the rash is in dots, purple-colored, and there is inflammation and suppuration of the lymphatic glands. It is extremely contagious, comes on with great violence, runs its course rapidly; petechiæ come out early, glands of neck, axilla, groin, and mesentery inflame and suppurate. Boils, fever, diarrhœa, vomiting, hemorrhages, convulsions, prostration, congestion, and softening of heart, liver, spleen, and kidneys.

Treatment the same as typhus; push antiseptics, and in order to prevent the bacteria from contaminating all around keep the body well covered with oil so as to smother them when they seek the skin.

YELLOW FEVER.

Bilious remittent yellow fever, accompanied with acute inflammation of the stomach, liver, spleen, kidneys, with severe headache, vomiting of black matter, and jaundice, is a fever caused by the malarial germ, and one produced by miasma of river-beds, a dual poison or fungus. Limited to tropical countries, not of infrequent occurrence in our Southern ports. The poison or fungus may be conveyed to temperate latitudes on clothing, sails, planks, vessels, merchandise, but the germ is there incapable of growth. It may occur in tropical parts, endemically, epidemically, or sporadically, and when it supervenes is both contagious and infectious. More common in males and the unacclimatized. One attack affords no protection against another.

The cause is malarial and paludal poison acting upon constitutions broken down by intemperance, excess, or non-acclimatization, aggravated by insanitary surroundings.

Symptoms.—Often ushered in quite suddenly with languor, lassitude, debility, loss of appetite, giddiness, headache, and mental depression. At other times begins with coldness of the surface and distinct rigors, followed by fever which continues a few hours, then remits. In another class of cases there is prostration from the first, without any febrile reaction; stupor,

coma, convulsions, soon following. When there is decided fever, we have an aggravation towards night; pulse becomes quite wiry and frequent, skin hot and dry, eyes congested and painful, face flushed. Distressing headache, often confined to one temple, intense pains in large joints and limbs. Nausea, great irritability of stomach, vomiting, first slimy, then greenish, then black—constant vomiting and retching. Tenderness on pressure over the stomach, liver, spleen, kidneys; a sense of tightness or constriction across the chest. Thirst is intolerable; great desire for cold drinks, only to be taken to be rejected. Urine diminished in quantity, highly albuminous, of a dark red color. Constipation, owing to an entire absence of bile in the stools. The restlessness is distressing; extreme mental anxiety; sleeplessness, prostration, active delirium. At the end of a few days severity of symptoms gradually diminishes, patient feels relieved; face becomes slightly jaundiced; skin becomes moist and there are copious biliary stools. In favorable cases convalescence is firmly established. More frequently the improvement is of short duration. After a respite of twenty-four hours, epigastric tenderness is aggravated; jaundice increases and spreads over the entire body; tendency to stupor; pulse becomes feeble, irregular, slow, often as low as thirty beats per minute; tongue becomes very foul and dry; respirations embarrassed; hiccough, thirst, nausea, vomiting, are constant. Unless symptoms remit, grumous blood is vomited—black vomit; urine is suppressed or simply retained; skin becomes of a dark brown hue; dark-colored blood is effused in patches under the skin, or exudes from the nose, mouth, gums, ears, anus, vagina. Most offensive, tarry-looking stools.

There are now all the symptoms of a malignant fever; almost imperceptible pulse, slow or stertorous breathing, involuntary evacuations, difficulty of deglutition and articulation, suppressed or bloody urine, with formation of buboes or patches of gangrene. Death takes place preceded by coma or convulsions, or in some cases the patient retains his consciousness to the last.

Its ordinary duration is from three to nine days.

Death may occur from the overpowering effect of the poison on the system, exhaustion, uræmia, or apoplexy of brain, liver, spleen.

Preventive Measures.—Removal of all nuisances or insanitary conditions; thorough ventilation of narrow courts, cellars, docks, warehouses, holds of ships. Cleanliness, removal of all waste matter, on board of ship pumping out bilge-water twice a day. Non-acclimatized individuals exposed should live on plain, nourishing food, avoiding alcoholic drinks and sexual excesses, and have abundance of sleep. To maintain

healthy action of the liver, skin, kidneys, and intestinal tract; to wear flannel clothing, and not to be out of doors early in the morning or late at night.

From the commencement to the end of an attack, the general indications for the treatment of a malignant type of fever should be carried out and rigorously enforced: recumbent posture strictly maintained, bed placed in the middle of a well-ventilated room, great attention paid to cleanliness, bathing, and disinfectants. Treat the urgent symptoms, guarding the patient through the difficulty. Simple diet, as arrow-root, barley-water, iced lemonade, broth, seltzer-water. Mustard to nape of neck and feet. Cloths wrung out of tepid water to the head for the relief of that terrible cephalalgia. The warm bath, or packs with water acidulated with nitro-muriatic acid. Patient packed in a sheet wrung out of that water. Ozone or nitro-muriatic acid water for a drink, occasionally turpentine cloths over stomach, liver, spleen. The factor in yellow fever is the germ or fungus, with high temperature, which is merely a consequence of the active disintegration that is going on in the blood. This high temperature is injurious by promoting disintegration in other ways. There are the best of reasons to keep down temperature by cold packs, for under an active refrigeration of the body the germ dies or becomes less active.

If the attack begins with great irritability of stomach, the patient might drink tepid water with bicarbonate of soda, and the following given:

Pulverized green lobelia, twenty grains; pulverized blood-root, twenty-five grains; pulverized capsicum, thirty grains. Infuse in half a pint of water and take at two doses. After the emetic, the bath and enema. Then the patient placed in bed, and the administration of quinine and tincture of the green root of gelsemium commenced. Two important remedies.

At the early stage there can be no doubt of the propriety of a large dose of quinine; later, small doses at considerable intervals. Given in large doses it produces cinchonism, which is of little consequence so that we get the blood saturated with the drug; it should be given as a bisulphate in doses ranging from five to ten grains every half-hour: later during the fever, when there is nausea and vomiting, in the following: sulphate of quinine, chloride of sodium, capsicum, of each thirty grains. Making six powders. One every three or four hours. With the first suspicion of the disease the tincture of the green root of gelsemium should be administered carefully and continuously along, keeping the patient under it so as to exhibit a decided physiological action,—double vision, thorough relaxation, refreshing sleep, and an abatement of fever. The green root tincture holds in abeyance the active principles upon which the

germ lives or survives. If the quinine will not rest on the irritable stomach, give small doses of the oil of bitter almonds instead: one to two drops triturated on sugar of milk every three hours. If the nausea and vomiting be persistent, tablespoonful doses of the following:

Vinegar, half a pint; common salt, a teaspoonful; capsicum, two teaspoonfuls. Mix.

If the fever does not yield to quinine, tincture of green root of gelsemium, or oil of bitter almonds, there is little to be hoped from the use of salicin and bebeeria.

If stimulants are required, neither alcohol nor ammonia should be given; capsicum and camphor should have the preference.

DENGUE.

An epidemic, sometimes endemic fever, highly contagious and infectious, which prevails in the East Indies and along our Southern coast, Pensacola, Savannah, Charleston, Philadelphia, and even so far north as New York.

It receives quite a variety of names, such as break-bone fever, eruptive rheumatic fever, dandy fever, &c.

Its cause is undoubtedly the same as yellow fever, to wit, malarial and paludal poison, probably modified by acting upon persons of a strong rheumatic diathesis. It is fully as contagious as yellow fever and requires the same attention to quarantine and sanitary surroundings to prevent its spread or diminution. If due care is not exercised, a most extraordinary epidemic may be developed.

The symptoms as seen in the rice-fields near Savannah are an eruption resembling scarlatina, with rigors and a fever combined, with the most intense rheumatic pains in the limbs and joints.

There are also a strong biliary train of symptoms: nausea, brown-coated tongue, glands of the throat often implicated; lymphatic glands of neck, axilla, and groin swell, and the testicles become enlarged. The pains in the joints of shoulders, arms, legs, and in the muscles, and, indeed, in all the bones of the body, are very great. The duration of the disease is about eight days.

The usual treatment is by an emetic, sweat, and saline cathartic, followed with large doses of tincture of green root of gelsemium and quinine, and then the gelsemium alone in alternation with salicylate of soda, effects a rapid cure.

We witness a curious fact in this disease as well as in other contagious diseases,—its mildness when confined to a given race, but spreading from that race to others, remarkable for its fatality.

ERYSIPELAS.

A specific inflammation of the skin or cellular tissue, or both.

Cause.—A partial death of the organs of digestion and assimilation caused by isolation, overcrowding, sameness, monotony, deleterious food, and other depressants to the normal living matter concerned in nutrition, altering, changing, or degrading it into the living germ bacteria, which is taken up into the blood, in which fluid it has wonderful growth and power of duplication.

Symptoms.—Languor, lassitude, debility, pain in the head, back, and calves of the legs, tongue coated with a heavy brown coat, usually constipation, albumen in urine, rigors, and a high grade of fever, either prior to the rigor or sometime subsequently an inflammation of the skin. This inflammation of the skin occurs because the bacteria in the blood have used up in their own growth a nutrition and multiplication of all the oxidizable properties in the blood, and are in danger of starvation, and are becoming weak and attenuated and seek the surface to have access to free oxygen. On the skin they become extremely vigorous, fresh life being infused into them as well as unprecedented growth, hence the spreading. They always select a portion of the skin that is weak or devitalized, as there the vessels are more loose and patulous and they can find their way to the surface easier. They will not come to the surface so long as they can get fresh oxygen in the blood; let this, their pabulum, become exhausted, and they soon appear.

It is easily recognized by its symptoms, bacteria on tongue, and the inflammation having a tendency to spread widely.

In treatment, an emetic of lobelia, alcoholic vapor bath, and a free action of the bowels with antibilious physic. General treatment for fever. Tincture of aconite, veratrum, green root tincture of gelsemium, sweet spirits of nitre, of each a teaspoonful to half a tumbler of water; one teaspoonful every half-hour till pulse reaches 70, then every two or three hours.

Then internally and locally, antiseptics; for internal use, brewers' yeast and sweet milk, or ozone-water, or chlorate or permanganate potash, or sulphurous acid, or tincture of iodine, or salicylate soda.

Locally, tincture of iodine and lime-water, solutions of borax, sulphite soda, permanganate potash. Use one of these lotions. Apply by cloths kept constantly wet and covered with oiled silk.

To parts where a lotion cannot be advantageously applied, the following may be used:

Take four ounces of glycerine, two teaspoonfuls of finely pulverized gum tragacanth, and a quarter of an ounce of iodoform. Mix.

Spread on old linen and apply. Change every three hours.

We say again, give and apply antiseptics freely, liberally, persistently; give them and the fever will abate, the tongue will clean, the gastric symptoms will subside—they kill the germ, the source of disease, the factor of fever.

Convalescence upon tonics, diet, fresh air, &c., cinchona and nitro-muriatic acid.

DIPHTHERIA.

In the human blood we have living matter or bioplasm that gives nourishment to bone, brain, skin, muscle, every gland and structure in the body. This living matter is capable of being changed, altered, or degraded by adverse circumstances into other living matter, which is capable of an independent existence in and out of the body, provided heat, moisture, and elements of nutrition exist. The degraded bioplasm of ordinary nutrition becomes bacteria, that of nerve-forming matter, vibrios, &c. In the vegetable as well as the animal kingdom, we see this tendency to degradation going on when suffering adverse conditions. Among vegetables, cereals, plants, and trees, when the soil is poor or exhausted, a change of their normal living matter takes place which is termed a blight, or rot, it being simply a change or degradation of the cell-elements of the organism of plant, cereal, or tree. We see daily examples in the potato, grape, pear rot, in grain of spurred rye, or corn smut. In the human body, when vital force is tremendously shattered or suffers very great deterioration, when humanity is a wreck, or whittled down to a very low ebb, we too take the rot or blight—a degradation of our own normal elements into a living germ, *oidium albicans*. This micro-organism is best seen in the false membrane of diphtheria, and presents a perfect or characteristic myceli and spores. The former are like tubes with partitions at intervals. These, under favorable circumstances, elongate, bifurcate, the bifurcations being peculiar in consequence of their incurved branches like the sides of a lyre. The mycelia multiply rapidly, and when a large mass of them is collected together, look like tall-growing flowers.

When the health is feeble, we often can detect isolated spores on the lips, tongue, nipple. The human rot has no doubt existed from time immemorial, although its destructive devastation was first exhibited in several villages in the south of England, in 1854-55; localities in which intermarriage was very common, and their drinking-water highly calcareous, and as a consequence, children tuberculous. From that time up to the present the disease has spread by spontaneous production, infection, and contagion, over the entire world.

As the term rot is not congenial to the ears of the refined or

fastidious, those pusillanimous members of modern society, it has been dignified by the name diphtheria—a sporadic, epidemic, endemic, contagious and infectious disease, due to living disease-germs, the result of degradation of normal bioplasm, causing toxæmia and death.

When the vital forces in children are very feeble, especially if the surroundings are bad, as dirty, damp, badly-drained abodes, it may break out spontaneously; if so there is usually great prostration; when received by contagion or infection, it comes on slowly and insidiously, with languor, lassitude, debility, headache, pain in back, calves of the legs, rigors, fever of a continued type; tongue heavily coated, brown, dark at root; rarely diarrhœa; mental condition dull, stupid, drowsy; heat, pulse, and respirations high; face flushed; skin hot; often delirious. Tonsils become inflamed and swollen; the parotid and other glands sympathize. Inflammatory action spreads to the uvula, fauces, pharynge, deglutition becomes difficult: if it is not properly arrested, a soft, plastic exudation or growth, vesicular in shape, fibrinous in character, is developed on the mucous membrane, in which millions of the living *oidium albicans* are lodged or imbedded. At first this growth looks like little vesicles or blisters, white at first, then ash-colored. They speedily coalesce and form large patches resembling dirty, damped, washed leather; if vital force is very low they grow with extreme rapidity. As they increase in numbers they also increase in size, extent, and thickness, firmly adherent to the mucous membrane beneath. If forcibly removed a new patch is at once formed, and this colony will grow; besides, the breath, urine, stool, are loaded with young germs which are very light, so much so that they may alight on the cheek, gums, glottis, conjunctiva, vagina. When the germ dies, membrane becomes gangrenous, sloughs separate, decomposes, and the breath becomes terribly offensive. When the mass is thrown off there may be sloughing or gangrene, or if vital force be well sustained, the tissues around may acquire a healthy appearance. In cases of extreme prostration it may appear on the cutaneous surface.

The constitutional symptoms vary much, the breath being very fetid, and occasionally hemorrhages from nose, fauces, bronchi.

Albuminuria in diphtheria is due to the action of the mycelia on the blood and to the fact that the kidneys are literally crammed full of the disease-germs. Death may take place from exhaustion, uræmia, hemorrhage, gangrene, asphyxia, embolism. In the event of recovery it is tardy, sequelæ being anæmia, nerve-affections, paralysis, sleeplessness, impaired or defective sight or hearing. It is apt to leave a weak or hoarse state of the voice.

As a pure isolated condition of rot in this country, diphtheria is not so common as in Europe, but our people are so restless and improvident of all sanitary measures that when it does occur it has a free, unlimited scope, as the poison is permitted to enter drinking-water through sewers, and contaminate our food by exposure. It may be true that the needs of society increase as they become more densely populous, and the isolation of the sick is more difficult.

Cases could be cited of cows with foot-disease (*oidium albicans*) imparting the germ to their milk, causing diphtheria; to milk exposed attracting the germ, propagating the disease; to cases of aphthæ and ulcerative stomatitis, causing diphtheria.

Its duration is from one to two weeks.

If the vital forces fail, choking and suffocation come on; the sufferer tears at his neck with his nails, and tries to open his mouth; retains power of swallowing; purpuric spots on extremities; muttering delirium, convulsions, and death.

It is easily recognized by the fever, stupor, dark coat on tongue, odor of breath, and this germinal growth on the mucous membrane on fauces, tonsils, first as vesicles latterly the formation of a false membrane.

The *oidium albicans* destroys the blood-discs and gives rise to the diphtheritic patches on mucous membrane.

In the Treatment the general indications for the treatment of a highly contagious fever should be carried out.

Patient placed at once in a well-ventilated room with antiseptics exposed. Bathing should at once be commenced, and performed thrice daily. The diet nutritious,—essence of beef, white of egg, cream and wine. An effort must be made to equalize the circulation, with tincture of aconite, belladonna, and veratrum. Then place the patient under antiseptics. Sulphur is most terribly destructive to the germ; flowers of sulphur in water as a gargle and internally, or blown through a quill on the membrane; raw beef to the throat changed thrice daily and subsequently burned. The tenderloin being more highly organized, is the best attractor of germs,—if not that, vaseline or ozone ointment. Inunction of vaseline or ozone ointment into the entire body after the evening bathing often operates like magic in the case. Chlorate of potassium and muriatic acid and sulphurous acid and quinine, as administered in scarlatina, should also be given here. If the sulphur is not used then paint the colonies or patches with tincture of iodine and carbolic acid,—four parts of the former to one or two of the latter. Yeast and milk is excellent, or a solution of pepsin crystals makes an excellent local application, otherwise the case must be treated on general principles, keeping in mind its cause, adhering to an antiseptic and constructive treatment through-

out. The *oidium albicans* or diphtheria germ proper is a great factor in disease; it is the disease-germ of spotted fever, ozæna, aphthæ of the mouth and nipple, of gangrene of scrotum and labia, ulceration at matrix of nail, gangrene or rot, generally invariably contagious and infectious. *Other remedies* are often used with great success, as pepsin added to milk; permanganate potassium, one-half grain; equal parts of tincture of iron and tincture of iodine painted over the germs on mucous membrane.

The constitutional treatment should be of the most constructive kind,—all forms of liquid nourishment. In all cases quinine and aromatic sulphuric acid. The selection of a proper antiseptic, one capable of destroying the factor, the germ, is of the utmost importance.

SPOTTED FEVER, OR EPIDEMIC CEREBRO-SPINAL MENINGITIS.

An irritation of the brain and cerebro-spinal axis by the presence of the disease-germ *oidium albicans* in the blood.

In states of the human body in which vital force is at a very low ebb, shattered almost irreparably, and this is aggravated by diminished electrical or perverted meteorological condition, a rot or degradation of normal living-matter into the disease-germ, the *oidium albicans*.

It attacks persons of all ages, with broken-down or devitalized constitutions. It is prevalent all over the world, and corresponds precisely to the blight in the vegetable kingdom, contagious and infectious.

It comes on slowly and insidiously, preceded by an undetermined period of incubation or germination, followed by rigors and a fever which last from five to seven days. The prostration and coma are extreme; head and heels thrown back; often livid or purple spots on the body, sometimes absent; otherwise the skin is remarkable for its pallor; flush on cheeks. Often convulsions.

Its duration is five days; recovery in all cases very doubtful.

There is a tendency for the different types of remittent to terminate in cerebro-spinal meningitis.

Its recognition is easy,—its insidious mode of attack, the coma, high fever, head and heels thrown back, livid spots on the skin, violent and short duration of fever.

If seen early, the ordinary treatment of fever by emetics, cathartics, and diaphoretics is admissible; arterial sedation with aconite and veratrum, and sponging. Diet, beef-essence and milk. Active stimulants over the cervical portion of spinal cord, with galvanic cautery or ice, followed by hot poultices or a liniment of tincture of belladonna, chloroform, and aqua

ammonia, equal parts. Secretions kept active. An effort must be made to suspend the impressibility of the medulla oblongata by the administration of the following:

Camphor-water, four ounces; bromide of potassium, half an ounce; tincture of calabar bean, half an ounce; bicarbonate of potassium, thirty grains. Mix.

A tablespoonful every hour.

If we can control the fever and suspend the impressibility of the cerebro-spinal axis, one point is gained. The other is to destroy the germ in the blood with antiseptics, for that fluid is but a living mass of bacteria and *oidium albicans*. Probably half-grain doses of permanganate of potassium in water, every two hours, is more rapidly assimilated than the chlorate and muriatic acid, or iodine and carbolic acid.

Otherwise the fever should be treated on general principles.

PUERPERAL FEVER.

A pregnant woman, from her innate modesty, houses up a good deal, and as a consequence there is an insufficient aeration or oxygenation of her blood. The gravid uterus presses the liver, which causes an imperfect decarbonization of that fluid; the two states combined render the blood very fibrinous, black, clotty, and full of bacteria.

The anterior portion of the uterus in all highly civilized women is very liberally covered with branches of the great sympathetic. Now supposesome depressing emotional condition is brought to bear on the case, as a blighted affection or passion; this would very naturally cause a weakness, an inertia, a debility of the uterus, which would likely render it unable to expel the placenta or membranes, or lochia, which would then be retained and undergo decomposition, and be readily absorbed by the mucous membrane of the vagina and uterus,—by the placental attachment and other wounds in the genito-urinary tract, or the products might pass directly into the sinuses of the uterus and thus into the blood, and cause puerperal fever. This is the common mode of origin: a depression of the great sympathetic the predisposing cause, and the exciting, absorption of the products of parturition. As it is extremely contagious and infectious, it may be received in that manner. The attending physician or nurse may have the germs of a former case in their hair, nails, clothes, and singular but nevertheless true, that the disease-germs of peritonitis, scarlatina, erysipelas, dissection miasmata, will give rise to it. The cause is supposed to be a dual germ, the bacteria-vibrios, which has most wonderful tenacity of life if brought in contact with hair or feathers or other animal matter.

Symptoms.—From a few days to a week after confinement

seems to be about the usual time necessary for its development. It comes on with rigors and a very high grade of fever, with a wiry pulse, anxious expression of countenance, prostration, and the symptoms of fever in an aggravated form; abdomen usually distended, and some tenderness on pressure. Lochia and secretion of milk suspended. The course of the fever is very variable—sometimes rapid death from blood-poisoning; in other cases violent acute metritis, complicated with peritonitis and gastritis with extreme tympanitis or diarrhœa, phlegmasia dolens, phlebitis, or pelvic cellulitis and abscess.

Usually in puerperal fever we have a group of diseases which dovetail into it, all swarming with the germs of disease, which, when combined with the mental state of the patient, render the mortality very great; besides, its death rate is often increased by insanitary surroundings.

Its duration is short, its fatality great; the double germ origin of the fever occurring in the weak, the unhealthy, the forsaken, the hopeless, the sad, or in those exhausted by a long difficult labor, render it very hopeless.

Treatment.—In this fever, with its dual micro-organism, there must be no folding of the hands in listless apathy and inaction, but there must be unceasing, unremitting activity. The danger is great, and we must face it boldly. Strengthen, heal, console, encourage, manage labor carefully so that injuries be reduced to a minimum, are objects never to be lost sight of, and if in attendance on a case of fever, or erysipelas, or peritonitis, scarlatina, or near a dissecting-room, *do not enter the parturient chamber*. Prevention is better than cure. The house in which the patient lives is tainted, and all puerperal women in the vicinity are in danger; the infection is intense; no article of clothing, no carpet, no curtain, escapes the lodgment of the germ. It nestles everywhere, and so tenacious are they that they will dog the steps of the physician or nurse for at least six months.

Ventilation, cleanliness, antiseptics, and a strong, buoyant, hopeful condition in the patient are our great safeguards. So long as woman's high moral nature exists and is susceptible to shock, so long will puerperal fever rage without infection or contagion.

For its treatment, rest, bathing, and general principles are to be inculcated. We can destroy the germ, moderate the fever, although we cannot repair a broken heart. The administration of as large a dose of the tincture of the green root of gelsemium and a solution of the sulphate of morphia as the patient can bear, is good treatment, pushed even to narcotism; it seems to arrest the incessant growth of germs. The uterus and vagina should be washed out three times a day with

carbolic acid and tepid water, or boracic acid and infusion of chamomile flowers, as long as there is odor.

Turpentine should be applied over the entire abdomen, and followed with olive oil and opium, or vaseline, or ozone ointment, and reapplied as soon as the redness disappears. We place great confidence in narcotism with opium and green root tincture of gelsemium, producing a quasi suspension for twelve or fourteen hours, so that the germs will be deprived of their proper pabulum and thus cause their death. If narcotism can be successfully produced, the patient, if well managed, is likely to recover. It is difficult to explain the why and the wherefore, but true narcotism is a beacon light in germinal disease. We have no antiseptic capable of killing the germ of snake-bite, or rabies, or yellow fever. We must produce a quasi suspension—in *statu quo*—an arrest of pabulum, and the germ almost instantly dies in the body; so in puerperal fever.

Double vision, profound muscular relaxation are to be reached with the gelsemium green root tincture, and with regard to the opium, the practitioner will select some form that is easily assimilated, and to which there is no idiosyncrasy (hypodermic injections are not admissible). Give often so as to act speedily, and procure thorough narcotism, which is manifest by stertorous breathing, profuse colliquative sweats.

The liver must be brought into an active condition; for this purpose fifteen grains of calomel should be given every hour until free biliary stools are passed, its action aided with salines. Boracic acid or salicylate of soda should have a trial as an internal antiseptic.

At night poultices of linseed meal are grateful and soothing, over the entire abdomen.

If the physician keeps carefully in mind that in this fever he has blood-poisoning, the growth of micrococci by millions, blood-poisoning by absorption, and a fever traumatic of a shock to the uterus, he will have little difficulty in treatment.

Good results follow the use of germicides, a teaspoonful of the carbolic acid and tincture of iodine mixture, or else one tablespoonful of brewers' yeast in milk.

ANTHRAX—MICRO-ORGANISMS—GIANT BACTERIA.

The alteration or change, or modifying, or degrading of the normal living matter concerned in the nutrition of animals, such as the horse, cow, sheep, goats, camels, and also poultry, give rise to a micro-organism, a giant bacteria, capable of wonderful power of multiplication or production in the blood of the affected animal, which may die, and during its life and after death when buried in the earth may communicate it to man or

other animals, or it may be disseminated with the hair of the animal into plaster, or mattresses, or the wool or hair of the diseased animal may be converted into cloth and infect all who handle it or are near to it, or even wear it, after being reduced to a textile fabric. When it occurs, whether in man or animals, it is essentially contagious and infectious.

The inquiry into the nature and cause of this fatal malady commenced in 1870, and was specially directed to the elucidation of the disease in its three aspects, external and internal, with bacterial poisoning. Without any lesion cases of sudden death in a few hours, of apparently healthy persons without any real cause, excited the minds of the philanthropic. Three healthy children in one house, one dying after another in a few hours, men and women very suddenly stricken down with obscure blood-poisoning, and the etiological identity of their symptoms traced to the disease so common and so fatal in alpaca and mohair factories.

The disease is quite common, and can be traced to the animals enumerated, or their hides or wool.

Anthrax or malignant pustule has been known for centuries as affecting animals and from them to man, but it is only of recent years that an internal or latent form has been suspected. The first striking epidemic that was observed in this country was an outbreak among horse-hair workers in a mattress factory; another among blanket-weavers, and others among tanners and butchers. The medical profession have been so dogmatically ignorant that they failed to recognize it, and deaths resulting from it have been rated as malignant smallpox. Its real or prevalent appearance in this country dates from the high tariff and the inauguration of the manufacturing of alpaca in 1866, and it has become more aggravated since the introduction of van mohair in 1872. Cases have become more numerous and often fatal within a few hours. Residents in the neighborhood of these factories are justly alarmed, the operatives are looked upon with suspicion and shunned and their occupation deemed dangerous.

Another source of contagion and infection is from domestic cattle, especially sheep; their wool is obnoxious. Tanners, glue factories' operatives suffer intensely. Land to which the debris or refuse of glue factories is applied for a manurial product is likely to become a centre of contagion. Farmers pay a high price for such refuse, and if mixed heavily with lime and ploughed under there may possibly be no danger, still it is well not to be applied to grass-fields as a top dressing.

One thing is certain, the disease is very prevalent among animals, terribly fatal, and when man receives the contagion or infection he seldom recovers. The hair or wool is the focus

of distribution, textile fabrics to a limited extent, but as our manufacturers are aiming at the introduction of a class of goods for which they are importing largely from Asia, hair or wools, the health of the community is endangered thereby.

Anthrax may attack man in three different ways,—malignant pustule, anthrax œdema, and internal anthrax.

The malignant pustule is usually the result of inoculation, and is most frequently met with on the hands, arms, face, and neck, or some exposed part of the body, and commences as a small red point or pimple, which may be painless or attended with a stinging sensation like that of a wasp-sting. A small papule speedily forms, which becomes covered by a flat vesicle which enlarges and usually bursts, discharging a clear bloody fluid; a central black eschar forms at the base of the discharged vesicle, and a crop of other smaller vesicles form around it. The surrounding tissue becomes inflamed, so that the vesicle is seated on a hard base, with a sort of erysipelatous blush and swelling extending for a considerable distance.

The central eschar enlarges and the corona of vesicles as well as the inflammatory sore enlarges and the œdema becomes quite great, so much so that if seated on the face, the head, neck, and shoulders become involved in the general doughy swelling. The lymphatics of the neck are seriously involved.

If the patient weathers the crisis, the central slough separates and the wound granulates and heals.

The constitutional symptoms are those of a malignant poison,—rigors, high fever, nausea, vomiting, prostration, sleeplessness, labored breathing, exhaustion, and delirium.

Death may occur early or not for several days.

Internal anthrax is as rapidly fatal with or without internal lesions. It is usually brought about by the bacteria giant cells finding their way into the blood by the air, food, and water. Lesions or rather colonies of the micro-organisms are found in the bowels, liver, spleen, brain, and blood.

The symptoms of the internal are prostration, vomiting, dysphagia, pain, uneasiness in abdomen, colic, and diarrhœa, the latter often bloody from the first; collapse, and cyanosis.

Death is often quick.

The symptoms of the form without internal or external lesions are those of extreme prostration, and malignancy.

After death in any of the forms the blood is found filled with large bacteria. Thrombosis of blood-vessels by masses of bacilli, not uncommonly an artery or vein being filled with a clot or plug loaded with germs.

The recognition of anthrax is often difficult and obscure, unless we have a good history, as a wool-sorter, butcher, tanner, or hair or wool operative or an attendant upon diseased cattle,

or using water into which the refuse of an alpaca factory empties for a drink, or baler of fleeces.

The pathology of the disease can only be well studied in a factory in which wool is used, especially alpaca or mohair, or the fleeces of our own animals who have died from it or any other disease. The mode of sulphur steaming resorted to in our domestic wool destroys the bacilli: this not being done in imported fleeces renders them capable of disseminating the most dangerous and virulent of bacterial poisoning so far known to the profession.

The use of aniline dyes is incapable of destroying the germs, so that some of our cloth is also contaminated with bacilli, and capable of spreading the disease. The imperfect method of tanning hides into leather has been productive of the disease.

A remarkable case occurred in 1881. A cow died from anthrax. Instead of burying it deep in the earth, far from wells, a manure-heap was piled upon it; in due season the manure was spread over a pasture field. It was so thoroughly incorporated with a prodigious number of disease-germs from the carcass of the cow, that when a herd of five hundred sheep were let into the pasture, all died inside of thirty-six hours from anthrax.

The production of anthrax among our domestic animals is an evil of grave importance, seriously injuring commerce as well as destroying human life, and is so easily prevented in animals by good care, plenty of healthy food, an avoidance of overcrowding and all insanitary conditions, and an abundance of pure water, that farmers can easily get rid of it. Indeed, the greatest care should be taken of our water supply; no wool factory or tan-yard should on any consideration empty its contents into a river or near a well.

The treatment of anthrax should be carried out on general principles, and our most powerful antiseptics freely given. The disease runs its course with such fearful velocity that there is little time to experiment. In the salicylate of soda we have a remedy capable of destroying the smallpox germ, arresting all process of fermentation, so definite, and some are so sanguine of its effects that they think it will destroy the living germ of rabies, and why not that of the bacilli of anthrax.

Ozone water is another remedy of great power, and so is a solution of permanganate of potash, which is capable of destroying the poison of the most virulent snake.

SURGICAL FEVER.

This fever has been defined to be a condition of imperfect reaction—a salutary effort of nature at recovery or repair; *idiopathic*, which is caused by a poison or germ operating within

the body, either inhaled or generated within; *symptomatic* or *surgical* fever, which is caused by a shock, a local injury, reflected to the brain.

Since the introduction of anæsthetics, surgical fever has assumed a very mild type, and in the large percentage of operations is entirely absent.

The cause of surgical fever is a local injury, or violence, or surgical proceeding that depresses the vital powers. It may assume five different forms or types, *simple surgical fever*, *irritative fever*, *intermittent*, *hectic*, and *typhoid*. It receives one or other of the above names, according to the train of symptoms and morbid condition present.

Simple Surgical Fever.—Languor, lassitude, debility, pain in the head, back, and calves of the legs, rigors, and a fever of a continued type.

When the patient is irritable, restless, feverish, sleepless, and the injury is to a nerve or vein, it is called *irritative*; when it occurs in paroxysms, like ague fits, which condition seems to be associated or dependent upon operations upon organs contained within the cavity of the pelvis, it is termed *intermittent*; if the vital forces are very low, urine copious and of a low specific gravity, with a morbidly clean tongue, flush on cheeks, burning in the palms of the hands and the soles of the feet, with profuse sweats, it is termed *hectic*; if the powers of life are still lower, we may have that degradation of normal bioplasm, vibrations, termed *typhoid*.

The treatment of these different types of surgical fever must be upon general principles. The circulation must be controlled effectively with arterial sedatives. We must enforce hygiene and nursing, supporting the patient carefully, and well watching and guarding all complications as they arise.

1. In the simple form, rest, veratrum, aconite, bathing, nourishment, &c.

2. If of an irritative type, anodynes, extract hyoscyamus, opium, &c.

3. If intermittent, quinine, gelsemium, iodine, salicin.

4. If a condition of hectic supervenes, stimulants, tonics, nourishment, aromatic sulphuric acid and quinine.

5. If typhoid symptoms, treat same as typhoid fever.

In all cases of surgical fever, the grand point is to blunt the impressibility of the nerve-centres; in this manner the severity of the fever is greatly mitigated. It is therefore of great importance to administer anodynes and arterial sedatives freely. A constructive or building-up treatment is of essential importance, and the general principles as laid down under the head of fever, rigidly enforced; especially bathing, rest, and a free use of antiseptics.

ERUPTIVE FEVERS.

Continued Fevers Characterized by a Rash.—The principal diseases of this class have some features in common; they are each due to the presence of a living germinal poison in the blood, which has a definite period of germination, called incubation; they are accompanied with fever, which runs a precise course, are attended with an eruption, at which period the germ seeks the surface for oxygenation, where they either destroy the cuticle and peel off, or gather in colonies and form vesicles, pocks, or scabs; that those changes are regular and definite—for the most part, the germ uses up in its own nutrition and growth certain elements in the blood, which seldom if ever aggregate in that fluid again; hence, as a general rule, the patient is subject through life to but one attack.

They all arise from a special germ, whose progress can be in some measure arrested or cut short, their severity mitigated, modified, and even abridged by proper remedies, thorough nursing, and attention to certain rules.

The diseases of this class are measles, rotheln, scarlatina, and small-pox.

Disease.	Germination.	Eruption appears.	Eruption fades.
Measles.....	10 to 14 days.	4th day of fever	7th day of fever.
Scarlet Fever	4 to 8 days.	2d day of fever..	5th day of fever.
Small Pox...	12 days.....	3d day of fever..	{ Scabs form on 9th day, { fall off 14th to 22d day.

If either of the above three forms of eruptive fevers are conveyed from an opposite or antagonistic race of men, the germ takes on inordinate activity and malignancy.

MEASLES, OR RUBEOLA.

A continued or infectious fever preceded by catarrhal symptoms, as sneezing, watering from the eyes and nose, accompanied by a crimson rash, and often attended or followed by inflammation of the mucous membrane of the organs of respiration. The cause is a specific germinal poison.

Symptoms.—After a period of germination, varying from ten to fourteen days, there is pain in head, back, calves of the legs; lassitude, shivering, fever, and catarrh, the eyes are suffused, lining membrane of the nose congested; mucous membrane of the fauces, larynx, trachea, and bronchi become much affected; eyelids swollen, keep watering, intolerance of light; sneezing, nose running water; dry cough, hoarseness; difficulty of breathing; drowsiness; great heat of skin; tendency to delirium; frequent, hard, rapid pulse; tongue white-

coated. The eruption comes out on the fourth day of fever, usually first on the face, then the body, and lastly the limbs, fading on seventh day; it consists of patches, rough, irregular, elevated above sound skin, often of a round or crescentic or horse-shoe shape. Between the crescentic blotches the skin is of the usual color. Fever does not abate on the appearance of the eruption. There is no peeling or desquamation of the cuticle, which is a characteristic in scarlatina. Diarrhœa often sets in on the declining of the rash. It is usually salutary. The contagion of measles is strong, being powerful through both its latent and active form, often pulmonary complications, especially in winter and spring months.

If the patient is tubercular, or the disease comes from another race, there may be laryngitis, cancrum oris, severe otitis, epistaxis, acute tuberculosis, or acute desquamatic nephritis. In a malignant form, when powers of life are low, the disease is remarkable for its fatality.

Treatment.—Confine the patient to bed, in a warm, airy, darkened apartment; enjoin hygiene; have him carefully sponged thrice daily with warm alkaline wash, or warm vinegar and water; put one teaspoonful of tincture of aconite and belladonna into half a tumbler of water, and give one teaspoonful of it every hour. Compound tincture of serpentaria should be given, thirty-drops every three hour in sweet marjoram tea. No cold drinks. Give the following to destroy germ:

Chlorate potash, muriatic acid, of each, two drachms added to four ounces of water. One teaspoonful in sweetened water thrice daily, and anoint the body with vaseline ointment. Diet, beef tea, milk and lime-water. If cough be troublesome, give small doses of ipecac. If there be debility, nourishment and stimulants. If there is any tendency to delirium or convulsions, bromide of potash in ten-grain doses, with warm foot-bath, drying well and applying dry mustard to feet and limbs; otherwise the case should be treated on general principles.

RUBEOLA NOTHA, OR ROTHEN.

This has been supposed to be a compound of measles and scarlatina; but it is neither, nor a hybrid, but a special disease, due to a disease-germ, and appears to be more common in the early summer months—but no period of the year seems to be exempt from it. Like all diseases due to a micro-organism, it is both contagious and infectious.

Symptoms.—There are the ordinary symptoms of languor, lassitude, debility, rigors, and a fever, which often runs high; tongue is furred; slight sore throat, redness of the fauces; little, if any, coryza, loss of appetite, drowsiness, looks heavy, eyes may

be red but do not water. The skin is full, tense, and raised, and a papular rash makes its appearance, which gradually intensifies in color and becomes of a bright rosy hue—these patches become blotches, and gradually spread over the entire body. The rash that comes out first soon fades and other patches make their appearance; the rash is followed by dryness of the skin.

In mild cases there is simply the rash without the least constitutional disturbance, appetite good, tongue clean, no languor, rigor, nor fever—nothing but a few tiny spots; larger spots or blotches of a rosy hue in one part, at the elbows and knees, and spots and blotches on the hands, arms, and legs; the redness and soreness of the throat scarcely appreciable, the rash may be gone in a day. Sometimes the cuticle peels, but as the constitutional vigor is good, he eats and sleeps well. Between a severe and mild case, Rotheln varies much in character and severity. Most frequently it presents no symptoms but the rash, or the patient may be quite sick, and the rash varies much, appearing like measles; in other cases diffused, or but a few sparsely scattered rosy-red minute dots; in others a perfect aggregation.

It is highly contagious and infectious, but its stage of incubation, fever, and eruption has not been defined. The worst case seldom lasts longer than three days. One attack protects the patient from all subsequent ones. It is followed by no sequels, and most invariably terminates in recovery.

The treatment consists in the warm bath, rest in bed between blankets, warm drinks, sweet marjoram.

Aconite and compound tincture of serpentaria, aromatic sulphuric acid and quinine, destroys the germ promptly, and should be given as soon as the skin is moist from the action of the aconite.

The child should be kept at home a few days, as the affection is even more contagious than measles or scarlatina. No after treatment is necessary.

SCARLET FEVER.

Scarlatina, an infectious fever, characterized by a scarlet efflorescence of the skin and mucous membrane of the fauces and tonsils.

Cause.—A specific germinal poison.

There are three grades or types of this fever—three different degrees of intensity of one poison, depending in a great measure upon the amount of germs inhaled and power of vital resistance on the part of the patient.

The three forms or grades are: *Scarlatina simplex*, in which vital force is good, and germs appears most on the skin; *Scarlatina anginosa*, vital force low, and germs abundant, in which

the skin and mucous membrane of the throat are severely implicated; and *Scarlatina maligna*, in which vital force is fearfully shattered, and there may be death in two or three days, with cerebral symptoms, or the fever may have an adynamic type; rash, if any, dusky or purple, with a tendency to supuration.

In *Scarlatina Simplex* the symptoms are a latent period of from four to six days, with languor, lassitude, debility, pain in head, back, calves of the legs, and also rigors and a fever. On the second day the eruption appears in the form of innumerable minute dots of a bright scarlet color, which rapidly diffuses itself over the entire body. This eruption terminates by desquamation of the cuticle, which takes place on the fifth day. It is merely a scurf on the face and trunk, while on the hands and feet large flakes of denuded cuticle peel off. While, or even before, the efflorescence is spreading over the entire body, the mucous membranes of the mouth, fauces, and tonsils become affected; the tongue at first covered with a thick white fur, through which red, elongated papillæ project; as the fur cleans off, the organ presents a strawberry appearance.

In *Scarlatina Anginosa* the symptoms are more violent, very much aggravated, and the languor, rigors, and headache very great; fever high, vomiting, delirium, and prostration. The fauces, palate, and tonsils become greatly swollen and covered with coagulable lymph, the nasal mucous membrane, parotid and other glands severely implicated, swollen, and often suppurating. Sometimes there is a diffuse inflammation of cellular tissue of the neck, which is swollen and of a brawny hardness. The eruption may be delayed to the third or fourth day, and may then come out in scattered patches. With its fading, on the fifth or sixth day, the fever as well as the inflammation of the throat begins to abate. Severe inflammation of the serous and mucous membrane is to be dreaded. In strenuous subjects it often assumes quite an aggravated form. Cases sometimes occur in which there is no eruption on the skin at all, and still it peels off after recovery.

In *Malignant Scarlet Fever* it assumes a malignant or typhoid form. Great cerebral disturbance, convulsions, urgent prostration, muttering delirium, sordes on teeth, foetid breath, incrustations of coagulable lymph on tongue, uvula, tonsils, fauces, gangrene often takes place, and there is suppuration of throat, nose, ears, and eyes. The rash, if any, is purple or livid; if it comes out it is late; more generally it never appears. A fatal termination almost invariably takes place on the third or fourth day; few indeed weather the storm.

Terminations.—Very apt in *anginosa* to terminate in ulceration and enlargement of the tonsils, inflammation of eyes and

ears and glands of the throat, with suppuration. Acute rheumatism, inflammation of heart, vaginitis, dropsy of the serous membranes, and acute desquamative nephritis, with albuminuria. Uremia is to be feared in mild cases as well as severe.

The scarlatinal germ makes great havoc with the red corpuscles of the blood, and the patient, unless well cared for, is liable to suffer permanently in health, and become affected with a variety of diseases dependent upon a deteriorated state of the nervous system as well as the blood. The remedies hitherto used by some members of the medical profession have been highly deleterious, and not prejudicial to the destruction of a living germ in the blood, nor maintainance of vital force.

The contagion of scarlatina is very powerful, a fact that cannot too strongly be impressed upon nurses, parents, and teachers. Parents are unaware that their little child, who has just recovered from an attack of scarlet fever, is able for at least three months to disseminate the disease wherever he goes,—that there is enough of living disease-producing bioplasm left on his hair and damaged cuticle to communicate the disease to at least a quarter of a million of other children, so that besides a complete change in the treatment after recovery there should be established a strict quarantine for at least that period of time, by which time, we have reason to hope, all contagious particles will have died out.

The time looks long, but we must look at the dangers that ought to be avoided.

Prevention.—Contagious and infectious diseases like scarlatina, small-pox, and typhoid fever, can be prevented or rendered so mild that the affected individual will not require to go to bed. On the first appearance of those diseases, the most rigid measures should be adopted to prevent them spreading, either in the family, school, or neighborhood. For this purpose it should be borne in mind that good diet, daily bathing, cleanliness, avoidance of all excesses, and removal of insanitary states, and every one in close contact deemed susceptible of the disease should be placed upon antiseptics, for it is a well-known fact that when the body is charged with those it affords a most unfavorable nidus or field for any disease-germ to grow, and their multiplication is at once prevented. Accordingly, when the disease is suspected, begin at once with antiseptics (even if late), and hold on to them, for if too late to prevent they will render it so mild that it will scarcely amount to much,—they will arrest the germ-development in the blood during the incubative period. What drug shall be given? We say any one that will not irritate the stomach, that is very soluble, and that will enable the body to resist decomposition, such as sulphurous acid, chlorate or permanganate of potash, iodine, carbolic acid,

arsenic. The following is an excellent formula, and one readily taken by children, and perfectly arrests germ-growth and destroys any already formed. Take eight ounces of the syrup of poppies; one ounce and a half of sulphurous acid; two drachms of Fowler's solution. Mix. One tablespoonful every three hours to a child from five to ten years of age, continued for ten days or more.

If this is not thought well of, then the carbolic acid and tincture of iodine prescription, as laid down under typhoid fever, should be used. The same method should be adopted in small-pox, although there I have been most successful with solution of chloride of lime, which acts so well that the pox never form at all.

Treatment.—In the general management of a case, the ordinary precautions for fever must be observed—rest in bed, warm comfortable room, sponging thrice daily till eruption appears; diet, beef-tea, milk, and lime-water; antiseptics in the apartment; silk or fine articles of clothing next to the patient's body; bowels and kidneys looked after.

As a cool and refreshing drink all through the fever, give the following: Take a heaped teaspoonful of tartrate of soda and add to seven ounces of water, flavor with essence of lemon, and as soon as the salt is dissolved add gradually a little lemon-juice till effervescence ceases. The patient may be allowed this freely, as it destroys the germ and keeps moisture on the skin.

The febrile action must be controlled by sufficient doses of tincture of aconite, belladonna, digitalis, and compound tincture of serpentaria. One teaspoonful of each to four ounces or half a tumblerful of water. A teaspoonful every two hours, or more frequent, to keep down heat, pulse, and respirations. A piece of raw tenderloin beefsteak, or some other fresh animal matter, to the throat, reaching from ear to ear, changed thrice daily, or vaseline or ozone ointment, to attract and destroy the germs. Chlorate of potash and muriatic acid, two drachms of each to four ounces of water. One teaspoonful three times a day in sweetened water, so as to evolve the chlorine, which is so destructive to germs. As a tonic all through the case aromatic sulphuric acid and quinine, one ounce of the former to twenty grains of the latter, the dose depending upon the age of the child. Young children of two or three years, five drops in water three times a day, which, with the chlorate of potash mixture, should be continued several weeks after recovery. Sulphur, the flowers, half a teaspoonful added to a little water, and gargle the mouth and throat at least thrice daily. As soon as the rash makes its appearance, discontinue the bathing, and instead anoint the body three times a day with warm olive oil, or, if expense is no object, vaseline or ozone ointment, which is

the best of all applications, as the latter destroys the germ on the skin. Those applications have a good effect besides the destruction of the germ,—they attract germinal matter to the surface; they allay the burning and tingling, and thus diminish reflex irritation; they obviate desquamation or peeling, thus enabling the patient to get among his fellows much sooner. The above is simple and efficacious treatment—aconite soothes the irritated nervous system; belladonna paralyzes the nerves of the throat, and maintains the fluidity of blood; digitalis protects the kidneys; serpentaria gives the germs a determination to the skin; the chlorine and sulphur destroys the living germ in the blood. If eruption does not strike out well, increase the serpentaria and give in warm sweet marjoram tea. *Avoid iron and ammonia* as poisons; they retard the action of the kidneys and are productive of dropsy.

In very bad cases ozone water could be substituted instead of the chlorate of potash. In the malignant form no treatment is of much avail, still we would give the above a fair trial. Well it is that it is rare. Some medical men have a tendency to represent the type of disease in an aggravated form, calling *anginosa* malignant; whereas without great prostration, a livid or purple rash, and suppuration from the eyes, nose, and ears, it should not be so designated.

The most common sequela is dropsy, a serous infiltration of the cellular tissue, dropsy of the three great cavities, sometimes labia and scrotum. This may be due to cold, the function of skin arrested, and the force of the insensible perspiration thrown on the kidneys, producing congestion and obstruction. The true cause is a blocking up of the structure of the kidneys by the germs, and it is a notorious fact that it is rarely present when digitalis is given, while it is the invariable sequela when iron, ammonia, and brandy are administered,—these three agents seem to arrest the urea in the weakened kidneys, and thus give rise to the difficulty. Under the old empirical treatment dropsy came on early, being ushered in with chilliness, headache, fever, and often vomiting. Face anæmic and puffy; general œdema, urine scanty, high-colored, dark smoky appearance, and contains albumen in large quantities.

In the treatment, great care and nice discrimination must be used. Infusion of digitalis, parsley-root, and asparagus are very useful, aided with warm baths and flannel, same as for effusion of serum and dropsy. Keep bowels rather free, and in all cases, irrespective of condition, an infusion of haircap moss should be prescribed and persistently administered. This has an excellent effect, being gentle, efficient, ever trustworthy, and seems to brace up the weakened kidneys to active work. Continue tonics for two or three months, with good food.

SMALL-POX.

Of all forms of degraded bioplasm of our own bodies, variola is the most loathsome, pungent, and contagious. It is the most perfect and definite of all disease-germs.

There is no safeguard against it, except in a high standard of health, for vaccination is neither protective nor prophylactic, but a delusion, a superstition, or mental hallucination. The inoculation of the cow-pock on the human subject is one of the most despicable and diabolical acts with which the medical profession have cursed mankind. Two-thirds of all our domestic animals are diseased, suffering from anthrax, plague, typhoid pneumonia, foot disease, which is analogous to diphtheria, and nearly all are tubercular. This infamous wrong, this scientific delusion of the perpetrators of this criminal outrage, is based upon the idea that the introduction of the cow-pock germ into the human blood will eat up all the pabulum upon which the variola germ could subsist, and that if the inoculated individual were subjected to the contagium vivium of small-pox that he could not take it, because there were no elements upon which it could subsist in his blood, so he was protected. It is the greatest farce in the whole domain of medicine. Practical experience has demonstrated it to be a fallacy, that it is no protection, that it does not even render an attack milder, but rather implants the diseases of the animal in the human being—degrades man's divine nature, and is inimical to the very existence of our race.

To corroborate this the Register-General of Great Britain, in his report of 1880, states, with the greatest accuracy, that the death-rate from small-pox in London in 1860 was seven per cent.; in 1870, seven and one-half per cent.; and in 1880, under compulsory vaccination, it ran up to fifteen and one-half per cent. This is the healthiest city in the world, and under the most despotic form of compulsory vaccination. This exhibits no stamping out, but a fearful increase, in spite of this filthy practice.

Small-pox may be defined to be a continued infectious fever, attended with an eruption of papulæ or pox, due to the degradation of the living matter of our own bodies—a specific living poison, communicated by contagion and infection. Particles of the germ variola are so light that they can be carried in the air for great distances—thousands of miles away from the diseased organism—and find their way into the blood by the mouth, bronchi, &c.

Like all other diseased germs their virulence is increased in fluids, as water, and the body after death forever contaminates the earth, for nothing but cremation insures their destruction.

The germ in the human body has four stages of existence,—germination, twelve days; growth and seeding, three days; germ seeking oxygenation in colonies, papulae, or pox, complete on ninth day; colonies or scabs fall off in from fourteen to twenty-two days.

Symptoms.—The period of germination in the blood, or latency, or incubation, lasts twelve days, during which time there is languor, lassitude, debility, pain in the head, in the loins, and calves of the legs, with persistent nausea and vomiting, tongue not much coated and white of eye clear, and as early as the ninth day a gritty feel can be detected in the skin. Following these symptoms a rigor and fever of three days, during which time pains in the head, loins, and muscles continue, but nausea and vomiting usually cease. When vomiting is severe, pains in the loins intense, they may be regarded as precursors of a bad attack. Peculiar eruption of pimples or papulae appear at the end of the third day of fever, appearing in the following order: first on the face, then on the neck and wrists; secondly, on the trunk, and lastly, on the lower extremities. The papulae have first a hard, shotty feel, then present vesicles on the summit, which gradually expand laterally to about the diameter of a split pea, are flat or depressed in the centre. On the eighth day of the eruption an inflammatory areola or circle forms around the vesicles, and their contents become cloudy and then purulent, the vesicles gradually ripen into pustules, suppuration being complete on the ninth day, at which time finer pustules break and crusts or scabs form. In from five to nine days more, longer or shorter, these scabs fall off.

In many instances the rash on the skin is accompanied with a similar one on the mucous membrane of the nose, mouth, throat, eyes, and ears; in others by a swelling and inflammation of the subjacent areolar tissue; occasionally by marked irritation of the nervous system, delirium, and convulsions.

The severity of the disease usually bears a direct relation to quantity of eruption. When pustules are few, and they remain distinct and separate from each other, the disease is not severe; when very numerous, they run together, coalesce, and lose their regularly circumscribed circular form, it is highly dangerous. This has caused a division of small-pox into *variola discreta* and *variola confluent*. Former not near so dangerous as the latter. Eruption on the face may be confluent, while scanty over the body; still if so, the disease is regarded of the confluent kind. Sometimes the pustules are so numerous that they touch each other, but do not coalesce; it is then said to be the *semi-confluent* form. Sometimes they are grouped in circles or clusters, and the name *Corymbose* applied. If in either case symptoms of malignancy or putrescency are added, the disease

is termed malignant small-pox, a most formidable affection. Occasionally after the early symptoms, as pain in the loins, nausea, vomiting, a rubeoloid or measley eruption, and later minute petechia, which increase in number and size, hæmorrhage takes place into the conjunctiva and from the bladder, bowels, &c., and death occurs on the fourth or sixth day; no characteristic rash, only a few scattered papules or vesicles having appeared, it is called hæmorrhagic small-pox, which is almost invariably fatal.

The greatest difference between the distinct and confluent form exists from the beginning. All the symptoms in the confluent form are very aggravated, intense, often proving fatal from the blood being surcharged with a living destructive poison. During its course, troublesome complications are likely to arise, as erysipelas, swelling of the glands in the groin and axillæ, phlebitis, ichoræmia, glossitis, plurisy, pneumonia, ulceration through the cornea, and suppuration of eyes and ears. No contagion so potent as the living germ of small-pox; infection lasts all through the case, from the earliest symptom to a little after the last crust has fallen off. One attack exhausts the susceptibility of the system to future attacks, as a rule. The practice of inoculation with the variolous matter is illegal.

Small-pox is easily recognized by the history of the case, the period of incubation, fever, and rash; in the earliest stage by pain in loins, nausea, vomiting, and a white or clear conjunctiva.

Treatment.—Much depends upon the recognition of the disease early; true, we cannot quite break it up, but it can be mitigated and rendered very mild. This can be done during the twelve days prior to the fever in the following manner: A daily emetic of lobelia, preceded and followed by drinking freely of an infusion of pitcher plant and composition powder, in which there is ten grains of sulphite of soda dissolved; this should be immediately followed with a dose of epsom salts, to which has been added fifteen drops of aromatic sulphuric acid, followed by an alcoholic vapor bath, to which half an ounce of tincture of iodine is added. Then keep the patient in bed, put a plaster of capsicum and vinegar, or else mustard, over the region of the stomach, and give carefully, and in small doses, one of the following antiseptics, to destroy the germ in the blood if possible; only one to be selected:

Sulphurous or aromatic sulphuric acid, about a drachm, added to a tumbler of water; a teaspoonful to be given at intervals, as the stomach will tolerate it.

Sulphite of soda, thirty grains, as above.

Permanganate potash, four grains, as above.

Chlorate of potash and muriatic acid, fifteen grains of the former to fifteen drops of the latter, as above.

Iodine and carbolic acid, same as in typhoid fever.

Salicylate of soda, a powerful antiseptic, is probably best adapted for the febrile stage.

Ozone water is very destructive to the germ; and the best, most efficacious of all, is chloride of lime, made as follows:

Take two ounces of carbonate of lime, and saturate with two drachms of muriatic acid, to which add six ounces of water. Filter well, and administer in teaspoonful-doses every three hours in water.

This antiseptic plan is to be carried out very rigidly during the stage of incubation, and also during the three days of fever, and in another form during the balance of the disease.

When the rigor takes place and fever sets in, it is likely to be very mild if the antiseptic plan has been carried out. After the rigor the patient must be kept in bed, in a well-ventilated room, free from carpets and curtains, and disinfectants freely distributed around the apartment. After his long fast the patient often has a keen appetite, and the diet should be generous—arrowroot, beef essence, milk, and lime-water, ripe fruits, warm drinks. Sponging the entire body during the three days of fever with warm mustard water and soda must not be neglected; after rash appears it must be discontinued. *All through an attack of small-pox, from its incipency to its termination, no cold article of food or drink, such as iced drinks, cream, or ice, should be given or applied to the patient.*

Arterial sedatives, as tincture of aconite, veratrum, and belladonna, one teaspoonful of each to half a tumbler of water, of which a teaspoonful should be given every hour or two.

Aromatic sulphuric acid and quinine—one ounce of the former to thirty grains of the latter—fifteen drops of the combination every four hours.

During the febrile stage the salicylate of soda, being not only an efficacious antiseptic but powerful arterial sedative, should be given. If its use is contra-indicated, give some of the other antiseptics. Warm drinks, as infusion of pitcher plant freely, with the addition of a few grains of bicarbonate of potash, change of sheets and linen daily, bowels open daily with enemata or salines. At the end of the third day eruption appears. Keep on with treatment, increase the quinine mixture; antiseptics need not now be pushed, still not discontinue if pocks do not fill well; nourishment and stimulants are demanded,—for a few days, fifteen-drop doses of tincture of black cohosh, thrice daily, has a marked effect in filling the pocks. When the eruption is out, anoint the face, eyes, nose, mouth, and ears freely with vaseline or ozone ointment—it will effectually prevent pitting. Cover the face and hands with a mask. Repeat twice or thrice daily.

Much has been said of the virtues or antidotal properties of the pitcher plant in small-pox, but the experience of the entire profession must be taken as a criterion of its worth. The opinion of its value is, *that it has no power whatever in the destruction of the germ*; nevertheless it is a peculiar diaphoretic, acting chiefly upon the follicles of the skin, rousing them into activity; besides, it is slightly depurative, and as the small-pox germ is a great scavenger to diseased blood, eating up the germs of tubercle, syphilis, and cancer, if they be present, the pitcher plant aids its action in some mysterious way, and in spite of the fact that in itself it is of little utility, and never can rank with an antiseptic, we still would say give it in a decoction all through the case. No other preparation than an infusion is of any value. It may be drank freely.

Yellow light seems to be most prejudicial to the germ when it appears upon the skin; not so inimical as darkness, however; though under either state no pitting takes place.

Tincture of iodine exposed in saucers throughout the bedroom of the patient, and some other disinfectants in any nook or corner of the dwelling, should, in all cases, be very rigidly enforced, as they are of great efficacy in destroying disease germs, and thus preventing their exit from the dwelling.

The factor in small-pox is the germ, and the whole aim and object of treatment is its destruction, and the maintainance of a high state of vital power to resist its destructive influence in the blood, so that the more antiseptics we can crowd in without offending the stomach, the milder the case. Indeed, so certain is this, that if we only see it early, a fine papulæ, or more frequently none at all, is the result of the above method. All complications must be treated on general principles; delirium and convulsions with belladonna and bromide of potash, heat to feet; restlessness by hop pillows or anodynes. If boils or abscesses form, open and poultice with yeast and flaxseed. If mucous membrane of throat is seriously implicated gargles of boracic acid, sage tea and glycerine should be used.

The above treatment effectually prevents pitting; vaseline or ozone ointment is unexcelled; but, as we have remarked, wear a mask till you have faith in the action of the remedies. We cannot insist too strongly on the imperative necessity of persistent and careful nutrition all through the case,—food often, at proper intervals by day and night. Beef-tea, broths, milk food, cream, finely chopped meat, chicken, game, are most acceptable.

The retrograding action of alcohol on all disease-germs must not be overlooked; this property alone renders it an agent of infinite value in the form of milk punch. There is no form of fever that bears such an amount of careful nutrition in all forms as small-pox.

DISEASES OF THE BLOOD.

SCROFULA, TUBERCULOSIS, STRUMA.

Synonymous terms used to designate a diathesis or cachexia in which the living disease-germ tubercle exists in the blood. The disease-germ tubercle is a change, an alteration, or degradation of the normal living matter of our own bodies. The precise method of degradation is unknown, but it originates within the body, and if man is not responsible for its origin, he has certainly himself imposed the conditions favorable for its production and dissemination.

The primary cause is some inherent defect or depreciation of the nerve centres—of that portion that presides over organic life and elaboration of blood causing a degradation of bioplasts into a disease-germ, which has new and independent power of existence, reproduction, and endless multiplication in human blood.

The causes that bring about this defect or deterioration of the human race are very varied—such as incompatibility of race, temperament, and age; the use of alcohol and tobacco; vaccination, isolation, monotony or sameness; demoralizing literature, immorality, vice; deleterious trades, as factory labor, lead, mercury, and phosphorus operatives; masturbation, drastic drugs; meagre, unwholesome, or insufficient food; insanitary surroundings, contaminated water, irritation reflected, absence of sunlight, drinking snow or ice water, disease, immoral atmosphere, reflex emanation, city life, water charged with sewerage. Observation and experience confirm the fact that children, the product of two distinct, opposite, antagonistic races, are all *tubercular*; persons identical in temperament, same in all physical and mental traits, are really consanguineous, and their marriage is equivalent to *in* and *in* breeding—progeny, *tubercular* children; the offspring of very old men are *tubercular*. In a series of observations of five hundred brains of drunkards, tobacco users, monotonous or isolated individuals, there was distinctly noted a general coalescence of the typical fissures,—a condition present in hereditary insanity, epilepsy, idiocy, and other low types of the human brain,—the offspring of such are all *tubercular*, of a brain type; vaccination may convey the tubercular germ direct from the heifer, as two-thirds of all our

domestic animals are diseased; even if lymph is pure, the practice deteriorates. It is unnecessary to point out the vitalizing action of morality and the depreciating effects of vice, immorality, and bad literature, in the production of a lower stratum of vitality, *tubercular*. The absence of sunlight, the drinking of ice water, insanitary surroundings, and other defects of modern civilization, have a decided action in whittling down vital force. The children of all operatives in lead, mercury, phosphorus, tobacco, cotton, and woolen factories are tubercular. The loss of important secretions, as in masturbation, render all the outcomes tubercular. Irritation reflected is a common cause, teething, worms, and later in life causes not so numerous. As to its being contagious and infectious, the fact is indisputable and requires no illustration. Every thing that has a lowering, depreciating action on human life may be enumerated as a cause.

When the constitutional defect is once acquired it may be transmitted to the children. Besides being hereditary and acquired it is, like all germ diseases, contagious and infectious. There can be no doubt that tubercle is often acquired by inhalation of the germ from affected persons through the atmosphere. The breath of infected persons is heavily loaded with the germs,—and the nocuity or inocuity of that breath will depend much on the suitability of the soil, as weak vital force, damage to lungs, &c., of individuals who are in close proximity, and explains the remarkable immensity to the diseases of persons in health. As it is supposed a very large per cent. of our domestic animals are also tubercular, man gives and receives this living contagion from them, by their breath, exhalations, milk, and flesh. Some estimate the percentage of tubercle in our animals to equal that of man about seventy-five per cent.

A man or woman's blood may be fairly loaded with this germ, and vital force very feeble, and unless there is some local weakness, the germ growth may not be apparent; but let there be a partial death of some organ, tissue, gland, or structure, the germ will readily find its way through the walls of vessels and grow with prodigious activity in the weakened part. In this manner germs find their way on the membranes and surface of the brain of little children, who have received blows, falls, and other shocks, to the giving *tubercular meningitis*; lesions of joints, *coxalgia*, *white swelling*; an inherent weakness in bones from starchy food and absence of phosphates, *rickets*; feeble lung structure, *pulmonary consumption*; weakness in bowels and mesentery, *tabes mesenterica*. Although this diathesis is so very common a fact that it can be transmitted from parent to child, and that it is so thoroughly blended through society, still it does not, in the true sense of the term, establish a morbid race,

for that is an utter impossibility, the evil curing itself by non-procreation. The very great prevalence of this cachexia among the best fed, housed, and clothed people in the world, excites the attention of all lovers of his race.

Symptoms.—Debility and indigestion are leading symptoms, torpid liver, defective pancreatic secretion, paleness and whiteness of skin, intellectual system often well developed, but incapable of long efforts; puffiness of face, with swelling of lips and nostrils; purulent discharges from ears; vesicular eruption about the head, enlargement of tonsils or glands of neck; often disagreeable odors from skin, especially from feet and axillæ; feebleness with rapidity of pulse. The debility is progressive, so is the loss of weight. As vital force progresses downwards, tubercle takes a rapid growth, temperature rises. Signs of tubercular growth and effusion in the organ affected. It may set in at any period of life if the blood is charged with germs. General liability is when the system is least resistant to depression—from three to fifteen or from eighteen to thirty years of age. Its development and progress are favored by anything that can depress or depreciate vital force, and thus cause a blight. The part in which the germs are thrown out and grow must suffer local depression.

When tubercle escapes from the blood through the walls of vessels that have lost their contractility, it appears under the microscope to consist of small round cells or cysts, imbedded in a cellulose membrane, and it can be seen growing like other germs by a proliferation from the walls of the nuclei. If the mother cell or cyst be squeezed lightly between two pieces of glass, so as to rupture it, in its contents can be detected millions of minute tubercles,—their mode of life, progress, death, or degeneration depending on their number, character of tissue, or structure in which they are effused, and the amount of partial death present in the part,—all influence or modify the progress and vitality of the germ. From the degraded cell or mother germ, the growth is by a budding or duplication, and when it dies, either from age, want of nutrition, or some adverse state, its albuminoid contents become first milky, then cheesy, then calcareous, and in any of these three stages it may break down and be thrown off or absorbed. Its color may be influenced by particles of coloring matter in the air or food. Its ultimate degeneration is phosphate of lime.

To prevent the development and transmission of tuberculosis, no diseased person should be permitted to marry, and State enactments should be made forbidding opposite races, or persons identical in temperament, from marrying. Great care taken of mothers,—no drain or strain on their physical and intellectual resources, especially during pregnancy or lactation. Strictest

attention paid to the infant's food, quality of milk, clothing, and air it breathes. Avoidance of all insanitary states, as bad ventilation, ill-drained or damp houses. No tubercular mother should be permitted to nurse her child. An avoidance of all that tends to deteriorate, as sexual excesses, bad food, or imperfect digestion. The diet should be of the best and blood manufacturing; dress, exercise, repose, and association, should be looked after,—the function of skin and bowels to be aroused, the powers of digestion increased and everything done to increase brain vigor, correct faulty nutrition and promote the formation of healthy blood.

As to the cure of tuberculosis, we would merely state, that all cases are curable before it has taken up a local habitation except those cases due to a mixture of races; for these there is no hope, as no sanitary arrangement, no amount of bathing, no kind or quality of food, no climate either on sea or land, and no known drug or method of treatment that can stamp it out—it is indelible. To cure it, we must resort to every means of restoring or building up vital force and the germ must be annihilated in the blood, as no living disease-germ can be eliminated.

Digestion, assimilation and secretion merit our first attention. Daily bathing, using iodine freely in the water, temperature regulated by vital force of patient, followed by inunction of a few ounces of olive oil into the body. Sleep should be prolonged to eight or nine hours, in harmony with the earth's magnetic law; head of bed to north, foot to south, insulated by glass castors; clothing woolen, a good non-conductor and vitalizer. Diet varied, abundance of fresh, wholesome animal and vegetable food, embracing oatmeal, milk, cream, eggs, boiled fish, beef, mutton, poultry, game, with abundance of bread and butter. As to location, one where there is an abundance of fresh air, pure water, and no insanitary surroundings—free ventilation. Change is essential to a high grade of physical and mental vigor. The patient should be surrounded with a vitalizing, religious, and high moral atmosphere, and his reading, history or science.

Medical agents to be used embrace two classes—one to strengthen, construct nerve power, restore lost vigor; the other to destroy a living disease-producing germ in the blood. The two classes of drugs should be administered alternately two or three hours apart, and changed weekly, as man becomes habituated to any one drug long continued, it becomes in a great measure inoperative. We will briefly enumerate the two classes:

Our best tonics in tuberculæ are those that promote digestion, and facilitate the rapid evolution of red corpuscles, for which compound tincture of cinchona, four ounces; aromatic sul-

phuric acid, one ounce. Mix. One teaspoonful thrice daily in water, one hour before meals; operates well. Indeed all preparations of cinchona and mineral acids favor the manufacturing of red discs.

Another and probably the second best remedy is the compound tincture of kurchicine, prepared from the bark of *holarrhena antidysenterica*. This is unquestionably a splendid drug for the purpose. One tablespoonful before meals.

As a general rule, we do not derive much benefit from iron; the liver is always sluggish, and it makes the patient feverish and irritable; still it may be tried; the best forms are those recommended under anæmia, acetated and muriated tincture, iron by hydrogen.

All our bitter tonics, such as golden seal, gentian, collinsonia, quassia, &c., are of little value, owing their medicinal property simply to their bitter qualities.

For the purpose of destroying the disease-germ tubercle in the blood, some of the following should be selected:

Glycerite of ozone, Nature's great scavenger of diseased blood, is our best remedy.

Iodine is invaluable, either in tincture form, or iodide of starch, or potash.

An elegant efficient formulæ is the following:

Tincture of iodine, one ounce; glycerine, six ounces; oil of eucalyptus, half an ounce.—Mix. A teaspoonful two hours after meals in sweetened water.

Tincture of iodine, two drachms; carbolic acid, one drachm; tincture of *nux vomica*, half an ounce; muriatic acid, two drachms; oil of eucalyptus, two drachms; water distilled, fifteen ounces.—Mix. One tablespoonful four times a day.

In the above the oil of eucalyptus must be cut with half an ounce of alcohol and shaken ten minutes before it is added.

The iodide of potash or soda is best given in the ozonized syrup of eucalyptus. Chlorine is extremely beneficial. Chloride of potash or chlorate of potash, two drachms; muriatic acid, two drachms; water, four ounces.—Mix. One teaspoonful three times a day in a glass of water, and just when ready to take add a small teaspoonful of sugar to evolve the chlorine on the stomach.

Chloride of gold, platinum, and mercury, are destructive to the germ but as they are liable to produce other changes not desirable are not used.

The hypophosphite of potash is of great utility, five-grain doses three times a day; it not only destroys the germ in the blood, but is so penetrating in its action that it will annihilate it after being encysted in some gland, or organ, or tissue for years.

CARCINOMA.

Cancer is a term applied to a diathesis in which the normal bioplasm of the blood is degraded or damaged, and a malignant bioplast or germ formed. It is essentially a germ disease, found in the blood of man and domestic animals, caused by some defect in the nerve centres. In many cases the blood is loaded with this germinal matter without the slightest local manifestation of cancer. In order to obtain the latter when the cachexia is present it will be necessary that some part be weakened by a blow, an injury, or irritation, so that the walls of the blood-vessels of the part weakened by violence, may lose their tonicity or contractility, so as to enable the germ to pass through their coats or walls by exudation or exosmosis and find its way into the devitalized tissue where it forms a nest or colony. In this colony we find the diseased cancer-germ in one or other of two forms—the sarcomata, having a connective tissue, a type of structure small, round, or spindle-shaped cells, with no stroma but many vessels—the carcinomata consist of fibrous stroma with large cells of epithelial type in interstices, yield cancer juice in which the germs are readily seen—these two forms of colonization divide themselves into the following varieties or rather forms:

Medullary, or soft, or brain cancer, (acute.)

Scirrhus, or hard, or stone cancer, (chronic.)

Epithelial, when skin and mucous membrane meet; colloid gelatiniform, alveolar gum, &c.

Melanotic or black cancer.

Hæmatoid, or fungus hæmatodes, or rose cancer.

Villous, lardaceous, osteoid, keloid.

The causes that produce this change in the living matter of our own bodies are obscure; we see it as a disease of civilization, being more prevalent in sections or localities noted for high mental culture, especially if the nervous system has been enfeebled by grief, anxiety, overwork. The peculiar or typical nervous defect may be hereditary or acquired, and when it once exists, whether of our own production or from the bodies of others, it is highly contagious and infectious. The causes of the peculiar innervation are very obscure, still there can be little doubt but that the various causes that operate in the production of tubercle, also have an analogous effect in the production of carcinoma.

The change of normal cells into this malignant germ is usually attended with extreme languor, lassitude, debility,—strength and energy much impaired—the skin assumes a dirty yellow hue; the secretions are arrested—the conjunctiva of a pearly whiteness—features contracted, sinking feeling about

stomach—stools clay-colored; great loss of strength and energy; general wasting, with mental irritability. When the germ escapes from the circulation and forms a colony, then we can detect a thickening, infiltration, induration, a separable tumor, which rapidly changes the structure of a part, usurps its original texture or organ—germs grow by millions, invade surrounding parts, extend to nearest lymphatic and induce general germ poisoning. The very moment a malignant germ colonizes itself there is pain—a congregation of a few germs it resembles a needle—a larger aggregation, a knife—the smaller the colony the less the pain, and at long intervals; whereas in an immense collection the pain is not only like a large knife darting through the part, but it is frequent, almost continuous. If the cancerous infiltration occurs inside of the chest and abdomen, pain is both anterior and posterior, which is explained by the character of the spinal accessory nerves.

It grows like all other living matter, and when from a deficient supply of nutriment or some other adverse condition, or natural death of the germ, disintegration and ulceration takes place, a foul, excavating ulcer, sanious, fetid discharge, the odor of hydrosulphate of ammonia, which the dead germ evolves, hæmorrhages, progressive debility, anæmia, nausea, vomiting, diarrhœa, complete exhaustion, death.

The tendency of all cases of carcinoma is to death, unless managed with great skill and long experience.

Anatomical researches will undoubtedly soon throw new light on the origin of both cancer and tubercle. It is more than probable that the true seat or origination of both will be found in or near the medulla oblongata and spinal cord, or some closely allied portion of the nervous system.

In form, the disease-germ tubercle is round, and maintains this characteristic even in large masses or colonies, and under all stages of sprouting and growing, and is devoid of pain; whereas, the germ carcinoma is very variable in shape, being heart-shaped, spindle-shaped, oblong, &c., and always accompanied with *pain*. Just like tubercle, a person's blood may be literally swarming with cancer germs who yet may live along, although feeling miserable, provided there is no local depression or irritation to cause their escape into relaxed tissue. The germ growth depends a good deal on the structure into which it is lodged.

The cancer germ is most tenacious of vitality; it can be preserved alive for ages in damp cloths, in the ground, or in water.

In the recognition of cancer we need not enumerate the mental irritability, the contracted features, the sallow skin, pearly appearance of conjunctiva, the odor of the breath, the sinking feeling about the stomach, the clay-colored stools, nor the dry,

husky skin. It is sufficient that we have a thickening induration, or infiltration, or tumor, and in that there is pain of a sharp, lancinating character, with intervals between, and that it resembles a needle or knife; that if the cancer colony is in the chest or abdomen that there is pain anteriorly and posteriorly—direct through; that if the cancer is on the face, breast, or other exposed part, and is ulcerating or disintegrating, then there is soreness, rawness, gnawing, as well as the intermittent pain, and the smell or odor of the discharge is most significant. Besides, in the cancer-juice and urine the cancer germ can be seen with a very low power. We cannot well speak of diagnosing such varieties as long as covered by skin. The *medullary*, or acute, or brain-form may be known by the intensity and frequency of pain; if covered, lobulated, doughy; if exposed, one mass of cancer germs; the *hard*, or stony feel of *scirrhus* having an excess of fibrous tissue and a few cancer cells, and in the early stages little pain; the *epithelial*, or cancrroid is easily known from its location, occurring where skin and mucous membrane meet; the black pigment matter of melanosis; the great excess of blood-vessels in fungous hæmatodes; the fatty feel of the lardaceous; the bony hardness of the ostoid; the jelly or gelatinous material of colloid; the leathery patch on skin of keloid. As to the engorgement of the lymphatics, they simply afford us an indication of the state of the blood as regards germ growth—if heavily engorged, germs abundant and active; if slightly, germs few and inactive.

The characteristics of cancer are definite, and different from all other growths or swellings, inasmuch as it is made up partially or wholly of malignant germs. There are a large number of growths or tumors—some simple and others compound—made up of the healthy tissues of the body, as fat, cartilage, and bone, which, when occupying their proper places, are essential to the perfection of the animal system; but when misplaced may interfere with normal functions or locomotion it is indispensable to remove. But cancer has no counterpart in the healthy body; the very existence of its germs, or their localization, sufficing to constitute disease; and more than that, their colonization in any part of the body is destructive, as they use up or convert healthy tissue into their own nutrition and growth.

Cancer, although a large micro-organism, and quite weighty, nevertheless is contagious and infectious. It can be carried into a healthy organism by air, water, milk, or by contact, and may remain in the blood and tissues in a latent condition until favorable conditions exist for their growth. The cancer germ has wonderful capacity for resisting death, due to some inherent power it possesses. We do not mean that it has the

vitality of the scarlatinal or small-pox germ, nor the remarkable power of dissemination and propagation. Germs differ widely in the facility with which they are propagated or spread from person to person.

Treatment.—In the treatment we must bear in mind that we have to do with some great constitutional defect that gives rise to a degradation of the normal living matter of our own bodies with a malignant disease germ. No local affection, the latter being simply a colony of germs in some weakened part, so that our remedies should be directed to the primary cause, the destruction of the disease germ in the blood, as well as those concerned in the growth.

We must give remedies to promote the activity of vital forces, increase their power, and at the same time destroy this disease germ in blood.

We must inculcate daily bathing, with alkaline, iodine and nitro-muriatic acid baths; nourishing food, vegetables, beef, mutton, poultry, game, milk, cream, raw eggs, oysters, boiled fish, and vegetable phosphates, as in corn and oatmeal; flannel clothing; moderate exercise in open air; as much change of diet, habits, and location as possible consistent with comfort. The surroundings should be bracing and cheerful, mental occupation invigorating; secretions should be well regulated and the bowels open once a day with either phosphate of soda or white liquid physic, sleep to be extended to nine or more hours by conium, and other remedies, and appetite stimulated with compound tincture of cinchona, four ounces; nitro-muriatic acid two drachms.—Mix. One teaspoonful in water before meals. Then the patient should be placed upon either glycerine or ozone water in teaspoonful doses and the compound extract saxifraga ozonized, in tablespoonful doses, using the glycerine every two hours. Let the tumor or germ alone if skin is entire, simply keep it covered and moist with saturated solution of chlorate of carbon, or Stramonium ointment or a solution of sulphate of manganese.

The clinical facts brought out by this method are interesting and instructive. The disease is arrested, the germ annihilated in the blood and the morbid growth does not increase in size. This applies to all forms or sub-varieties. After this is carried out usually about six weeks, the cancerous mass deports itself very much as if it were a foreign body, and seems disposed to make its way rapidly to the surface; but although this takes place the growth shows no activity, for its bulk gradually diminishes in size. In other cases there is a decrease by exfoliation. From the first dose of the antiseptic there is amelioration of pain, and in a few days it ceases entirely. Lymphatics progressively diminish. On open cancer the effect is also good.

In large tumors, and cases where removal is indispensable either as a means of more rapid cure, or to satisfy the patient and his or her friends, then we must select a method devoid of pain as far as possible, and one that has the strongest affinity for the total destruction of cancer germs. We shall enumerate a few: the first is what we are at present using and supplying to the profession.

Chloride of Chromium.—Make a saturated solution, dissolve it so as to have quite a portion at bottom, then submit that solution for twenty-four hours to the action of ozone gas. After which hermetically seal and keep ready for use. When about to use, add a sufficient quantity of pulverized blood root and make into a paste of the consistency of molasses. When about to apply to a cancer protect the adjacent parts very carefully with plaster, and then apply the plaster from half an inch or more thick with a wooden spatula. It will at once penetrate the entire cancerous tumor down to its most minute roots, cause either destruction of the entire germinal mass, give a perfect demarcation between the healthy and the morbid tissue and the process or application is not accompanied with pain. Its ultimate removal is effected with poultices and ordinary dressing.

The succus or expressed juice of the sheep sorrel, red clover tops and phytolacca root, evaporated down to the consistency of a heavy syrup spread on leather and applied, watching that no inflammation be excited; if there is, poultice and discontinue, when subsided reapply. Continue in this manner for several weeks till it drops out. It is tedious but not painful.

The subsequent dressing is to be effected by antiseptic poultices, strapping with adhesive strips, and latterly ozone or vaseline ointment.

During this process of removal, the constitutional treatment with glycerite of ozone and the ozonized compound extract of saxafraga is to be pursued.

If the patient is irritable, or suffers in any way, relief must be given by hypodermic injection of a quarter of a grain of sulphate of morphia in solution at bedtime, with inhalation of a few drops of chloroform; this will give prolonged relief, or half of a grain of morphia may be given internally, or what is better is a pill of the extract of conium with one grain of pulverized opium, the quantity of conium to be as large as the patient can bear.

To promote absorption, solutions of chlorate of carbon, sulphate of manganese, iodide of potass; ozonized clay, or stramonium ointment. In the preparation of this ointment, it should be made with fresh lard, deprived of its salt, and the young tender leaves added as it is simmering; those removed

as they become crispy, others added until the lard is thoroughly impregnated with it—greener in color than the plant leaves. This is much more prompt in its action than any ointment prepared from a solid extract.

For all internal cancers, the application of the ozonized clay spread about from a quarter to half an inch thick, and strapped or bound carefully over the part, never causing redness of skin; if so, let it remain off and reapply when it disappears. It might be taken off daily, moistened with water and reapplied; changing the clay about once a week.

For uterine cancers, the chloride of chromium is elegant, as it operates quickly, does not spread; a pledget of cotton can be saturated or filled with it and applied.

Constitutional treatment carried out. In the entire treatment let the idea be antiseptics; if it is vaginal or uterine, washes consisting of tepid water with permanganate of potash, sulphate of manganese, lime-water, borax, as a wash for the ulcer. As to internal remedies, use alternately the following remedies for about a year: Alteratives two hours after meals, and to consist of ozonized saxifraga, compound syrup stillingia, iodide potash. Tonics before meals, and to consist of cinchona and mineral acids, aromatic sulphuric acid and quinine; conium and opium, two grains of conium to one of opium every three hours, so as to perfectly blunt the impressibility to pain.

Other methods of removal accompanied with great pain sometimes used for the removal or destruction of cancerous growths:

(1.) Take equal parts of chloride of bromine, chloride of zinc, and chloride of antimony. Mix into a paste with powdered liquorice and apply.

(2.) Blood-root pulverized, one ounce; chloride of zinc, two ounces; water, two ounces; flour, sufficient quantity to make a paste. This is the form very generally used in the treatment of cancer; it is very painful, but never-failing, as a caustic, shriveling the cancer to a dried mass.

(3.) Chloride of zinc, sixty grains; flour, one hundred and twenty grains; water sufficient to make a paste. Roll into sticks, dry and keep ready for use. Make incisions round tumor and insert.

(4.) Take two or more ounces of C. P. sulphuric acid and saturate it with pulverized sulphate of zinc. Take a pen and dip in it, and go round and round the cancer several times, make a furrow, which fill with the paste; renew every few days so as not to excite much inflammation. Very useful for removal of cancerous tumors of the breast. A sniff of chloloform and a hypodermic injection at each application will relieve the pain.

SYPHILIS.

Wherever sexual intercourse is loose and varied, few women among many men, there takes place a change, alteration or degradation of the normal living matter concerned in the nutrition of the organs of generation into a diseased germ—the syphilitic. This change in living matter is simply the result of a violation of divine and natural law. This degradation of bioplasm may result in an immature germ, its development up to a certain point and no further, or a perfect germ. This division has led to a description of it under two different heads: the imperfectly developed germ, producing a non-infecting inflammation of mucous membrane and skin; whereas the perfectly formed germ produces constitutional contamination whenever applied,—in other words, the immature germ does not enter the blood, whereas the true perfect germ enters the blood and grows there.

The immature or imperfectly developed germ is capable of forming a specific form of inflammation of the urethra, and a soft non-infecting chancre or pock on the skin, provided there be a crack, fissure or abrasion by which it can reach the true skin—the germ present in the urethra or pock not having strength enough to enter the blood. Indeed, they are so immature as to be incapable of growth in that fluid, and if not interfered with will gradually die out in a few weeks; whereas the mature, perfectly developed germ in the urethra, as an ulcer on the skin, as a chancre or sore will enter the blood, and if vital force is good it may remain latent; vital force average it will grow; vigor very feeble it grows with tremendous rapidity.

As the venereal disease has been described as existing in primary, secondary and tertiary stages or conditions, it is now indispensable, under new light, to discard such terms applied to supposed stages in syphilis, because it does not really exist, for the living syphilitic germ can be communicated by contagion and infection in or during any supposed stage, and under all possible conditions; by breath, sweat, saliva, kissing, close contact; through air, water, milk, beef, clothing, beds, cushions, articles handled in ordinary use, and can be communicated by parent to child; no primary, secondary or tertiary condition being necessary. It needs no such process. Let it once enter the blood, it will grow and multiply with a slowness or rapidity according to the vital force of the individual. If health is feeble it will grow immensely, and while thus multiplying will find its way into weakened parts of the body, and thus give rise to an innumerable train of special affections, as skin, bone, mucous membrane diseases, epilepsy, asthma, etc., etc.

Although the immature germ, present in a soft non-infecting chancre, has not vigor to enter the blood, and even if placed there would die, it nevertheless has many complications or accidents, such as sloughing or phagedena, and it may be associated with tubercular and other germs. We will briefly notice the disease first as a gonorrhœa, and then as a pock, simply to facilitate description and treatment.

Gonorrhœa.—Inflammation of the mucous membrane of the urethra of the male or the vagina of the female, attended with a contagious muco or muco-purulent discharge, of which there are two varieties: first, that due to the immature germ; second, that due to the perfect germ. Usually about the third day of exposure to contagion, the ordinary symptoms of inflammation make their appearance,—itching, pain, heat, redness, swelling with a slight milky discharge which soon becomes muco-purulent and profuse, great scalding, pain in groin, irritation of bladder, weight and dragging about the loins.

The above embraces the general symptoms of the non-infecting form; in the other or infecting form there are few, if any of the above symptoms present, but simply a muco-purulent discharge in the morning.

In the non-infecting form the entire mucous membrane is affected, whereas, in the infecting, there is usually simply an ulcer or chancre in the under surface of the urethra.

We have many and numerous complications in the male, as painful erections or orchordee, balanitis, hemorrhage from urethra, retention of urine, abscess, prostatitis, cystitis, orchitis, gonorrhœal ophthalmia and rheumatism.

Treatment.—Mild saline aperients, moderate rest, diet free from articles that engender acidity, and if seen early it is a good plan to abort it by washing out the urethra several times a day with borax and water, and after each ablution to inject it with:

Distillation from eucalyptus leaves, four ounces; acetate of zinc, ten grains; acetate of morphia, six grains.—Mix.

Use after each borax injection any antiseptic lotion, such as borax, permanganate, chloride of zinc; and internally administer compound syrup eucalyptus, four ounces; balsam copaiba, one ounce.—Mix. From one to two teaspoonsful three times a day.

For the Relief of Scalding.—Warm baths, sweet spirits of nitre in flaxseed tea.

For the Relief of Chordee.—Half teaspoonful doses of green-root tincture of gelseminum at bed-time, to be repeated if necessary, and if it fails give twenty grains of bromide of potash and repeat.

For Retention of Urine.—The same, with suppository of belladonna.

For Hemorrhage.—Cold applications and gelseminum.

For Balanitis.—Washes of permanganate followed by vaseline or ozone ointment.

Chronic Gonorrhœa or Gleet.—A transparent mucous discharge, no scalding or pain, frequent calls to urinate, when the prostate or neck of bladder is irritable pain in perineum.

Care should be observed in all cases of gleet that there be no stricture or thickening of the urethra, or weakness of the ejaculatory ducts, or chronic inflammation of the prostate.

Gleet free from these complications is easily got rid of by the administration of iron or cinchona, general tonics, injecting the urethra with cold water and an abundance of nourishing food.

Gonorrhœa in the female is easily managed with copious vaginal injections of tepid borax water alternately with permanganate at least thrice daily, with hot baths, and the same remedies internally as the male.

That form of gonorrhœa dependent upon the germ of high power must be treated with antiseptic injections and other remedies in infecting chancre or constitutional syphilis.

Soft, Non-Infecting Chancre is a local disease-germ too feeble to enter the blood, but gives rise to suppurative inflammation. There are usually several sores, with well-defined edges, looking as if portions of healthy tissue had been punched out. The secretion abundant. In the treatment avoid caustics, if possible, washing the sores thrice daily with a strong wash of permanganate, or sulphurous acid, or compound lime-water, or any other antiseptic; and at other times keep them thickly covered with vaseline or ozone ointment. The method of treatment obviates the complication of suppurating bubo, which is so common after cauterization.

This form of chancre in persons loaded with tubercular germs often takes on a peculiar appearance resembling a horse-shoe, losing its ulcerative tendency, and has a disposition to remain in *statu quo* for months. It is called serpiginous or dual germ, which nothing but iodine seems to destroy; so we give this internally and apply locally with the best results. Mix two drachms of iodide of potass. with half an ounce of tincture of iodine, and give from ten to fifteen drops three times a day. Paint the chancre once a week with the same, and apply ozone ointment in the interval.

The non-infecting sore has a great tendency to suffer additional degradation by adverse conditions, and we often have the *oidium albicans* operating on it. Over-crowding, filth, prostitution, meagre or unhealthy food, with bad sanitary

conditions, aid in its production; then the sore sloughs, eats and takes on a gangrenous condition.

Fresh air, nourishing food, great cleanliness, thorough hygiene, removal of nuisances, antiseptic fermentations, hot hip baths, with permanganate of potassa or sulphurous acid; poultices of yeast with salicylate of soda and opium, and give internally cinchona, mineral acids, iron, iodine and opium to keep patient comfortable.

With all these complications the immature germ of a non-infecting chancre never affects the blood.

Indurated Hunterian Infecting Chancre.—Suppose, for convenience of description, we take the pock on the organs of generation. As this is the ordinary visible means of ingress, we select it because it is more apparent; there are a hundred other channels, by close contact, breath, kissing, clothes, milk, beef, and we might cite the cases of professional tattooers who have contaminated thousands of persons by their saliva.

In the infecting chancre, a single living germ finds its way through a scratch or abrasion of the cuticle to the true skin,—a secreting membrane,—it breeds, forms a nidus or reservoir, and if it is not disturbed before the eighth day, it shall have multiplied a hundred fold, and so rapidly that even the distended veins leading from the inoculation are incapable of carrying them fast enough into the blood, so colonies are left behind which form a ridge or eminence, which is termed an induration. It is simply a mass of germs, an aggregation which will by and by find its way into the circulation. Whenever those micro-organisms or carrion enter the blood they are safe: their living particles find protection and nutrition there. If vital force is moderately good, the germ may lie dormant or be held in abeyance by a high standard of health; nevertheless the individual can transmit it to others, especially to his offspring. Let vitality be depressed by any cause, then growth and multiplication is active even in proportion to the deterioration from health; and if there is any localized weakness there the germ will more abundantly congregate and grow, giving us chronic ill health, obscure diseases of the vital organs, as the brain, heart, lungs, bones, mucous membrane, skin.

From the moment that the germ enters the body, till its death or destruction in the body, for it must die there, systemic syphilis is a contagious and infectious disease, whether it be latent or active. Suppose, then, that vital force is depreciated and the germ merges into activity and growth. Simultaneously with the entrance of the germ into the body, if vital force is feeble, or six months later if somewhat stronger or even years, subsequently, an indescribable train of symptoms make their appearance in no definite order. There may be languor, lassi-

tude, debility, even fever—if the skin is feeble the germ may appear here in some form or grade corresponding to the condition of vital force—if mucous membrane be feeble, colonies of germs will settle there, giving us various forms of ulceration, but it has now blended with it the *oidium albicans* of aphthæ; but on skin and mucous membrane it is easily recognizable in the Caucasian by its copper-colored appearance and lack of sensibility—if the bones are feeble the germs will lodge there giving us periostitis with nodes; ostitis with necrosis and caries—they often find their way into the most delicate parts—one even can estimate or approximate their growth and their destructive action on the blood by the degree of nocturnal pain in the bones, the tenderness of the sternum and enlargement of the post cervical glands of the neck; they are never failing criterions—the matrix of hair suffers an invasion and the hair drops out. Tuberculæ are created, mucous tubercles or patches become common at points where skin and mucous membrane meet, lips, vulva-anus—often iritis of vital force is greatly shattered, with deafness and brain affections; in some cases the onyx of nails are copper-colored and often rot or crumble—ulceration of tongue, hard and soft palate, perforating ulcers, larynx, trachea—elevations and gummy deposits—caries and necrosis of the cartilage and bones of the nose, and in a large per cent of cases the germ invades various vital organs as the brain, spinal cord, lungs, heart, liver, kidneys, never appearing on skin or mucous membrane at all.

In hereditary syphilis cases in which the father transmits the disease to his offspring, the child may apparently be born healthy, and at some period, usually within six weeks after birth, the original disease makes its appearance on skin, or mucous membrane or elsewhere, besides it has indelible marks in the epiphysis of its long bones. In another class of cases, the skin at birth is sallow, withered and contracted; most commonly we perceive excoriations around ears, arms, lips, mouth, joints, and throat, copper-colored in appearance. There is also in numerous instances amyloid or starchy disease of liver.

If the Caucasian contracts the venereal disease, either in its high or low potency—or immature or perfect germ—infecting or non-infecting form from any other race, such as the Mongolian, Negro, Indo-American, it exhibits an intensity, virulence and malignancy greater than twenty per cent; besides it is intractable and difficult to eradicate.

When it occurs among races with an active pigmentary gland in the skin, if the disease manifests itself there, it stains that gland deeper—the skin of the jettest black will be blacker in follicles or patches in which the germ locates.

As a result of the fearful increase of syphilis, our washer-women suffer most, or those necessitated to do the washing of the afflicted. It is impossible for those in the private walks of life to realise the extent to which the disease has penetrated—its degrading or retrograding effect; its rapid increase and widespread dissemination, and its blasting action on our youth. No greater misfortune could befall a bright buoyant young man than to become the victim of this disease, with this germ lurking in his blood—to him the charms of youth are extinguished—he becomes preternaturally old and petulant—his existence is darkened, and he becomes insensible to all the finer feelings of manhood, duty and affection.

The social evil is the breeding pond whence emanate the germs, and this has become woven into the web of modern society—it has penetrated our homes, our workshops, our schools, even our churches and benevolent institutions, and the question suggests itself, What can be done? Its dissemination cannot be prevented by license, or weekly inspection of the inmates. It is impossible, as there are seething brothels at every corner in our large cities, covered by any kind of trade, or occupation; ostensibly a shop, cigar, liquor, millinery corset or some other depot, but in its varied apartments and blighted boarders a manufacturing brothel of disease and death. The whole basis of society in our larger cities is rotten—eighty per cent of their population is tainted. Something must be done to rid us of those modern hells, those nurseries of vice, those abodes of moral, mental and physical corruption, those agencies of human degradation—our very existence as a nation is threatened.

As we are a Christian nation we naturally look to the church for an earnest, united, energetic effort. For this purpose we want more powerful preachers—men of riper knowledge and greater experience of the world—more keen and higher training to grapple with this gigantic evil—men capable of ministering to the bold, keen intelligences and arts and deceptions of vice. The earnest hope of every Christian is that the clergy would rouse to the task and enter this new field of moral and physical corruption. Or shall we, the great civilizing race of the world, acknowledge that we are unable to cope with this evil?

Must we confess that this shocking and unparalleled condition is only an outcropping of a universal, underlying rottenness? Oh no, we must proceed against this social evil, *not* because it offends public morals;—not because it is a great national enemy, nor an enemy of public virtue; not because it demoralizes and debauches our children and its lewdness is a shame and disgrace in the eyes of the world; not because it is

sapping the vitals of our people and causing our very foundation to totter; not because it is unclean and spreads a loathsome disease, but because it is an enemy to God and man, mocks Christianity, retards progress, arrests human felicity, shortens longevity, and destroys the higher civilizing function of our race. There should be no listless apathy or toleration among this wilderness of vultures. By refusing to unite in an effort for its extinction, we become participaters in the degradation it engenders.

We do not believe in the importation of syphilis—that it originally came to this country in that form. Oh no, we can prove it to be the degraded living matter of the prostitute's own body, brought about by promiscuous sexual intercourse. We cannot shut our eyes to the fact of a woman having sexual congress with eight or more men in twenty-four hours, day after day, week in and week out, whose vaginal mucous covering has lost its rosy tint and become purple and cold as an icicle without disease being present.

The disease is of our own production, and all lovers of their race and their country must look at it as our national ulcer; an eating cancer, a gnawing worm in our nation's vitals, a poisonous mushroom tainting society to its centre.

In the recognition of constitutional syphilis we need no history, as the disease may reach us in a great number of ways; what we depend on is the copper-colored appearance of mucous membrane or skin, such as the roof of mouth, pains in bones at night, pain in the sternum, and enlargements of the post cervical glands of the neck; debility, loss of hair, copper-colored appearance of root of nails, grave changes in periosteum and bones, nodes, thickening, dry husky condition of throat, perforating ulcers, and other points as enumerated under symptoms.

Inoculation of the syphilitic germ has been foolishly recommended as a protection, and members of the profession have been base enough to try it, contaminating those inoculated every time it has been performed, even repeated inoculations only aggravate its intensity. The insertion of the venereal virus under the skin ought to be regarded as a criminal act.

Treatment.—There is no possible doubt as to the thorough destruction of the disease germ in the blood and a perfect cure being effected, and the affected individual capable of becoming the father of children, free from the disease. The length of time for destruction to come will depend greatly on the means employed. Where expense is no object, in a few months, where means are more limited longer, but a cure can only be effected by the escape of the living germ into other living or organic matter, or its total destruction in the blood, as no living poison can be eliminated. First of all, the diet should be light and

very nutritious; meat, boiled fish, milk, cream, raw eggs; warm clothing, flannel, and avoidance of cold or damp. Alcoholic vapor bath with iodine or sulphuric acid three times a week, keep liver active with chionanthus. Then place the patient upon alteratives and tonics, and in selecting those remedies, choose those capable of destroying germs. Keep that idea ever before the mind. Such tonics as glycerite, ozone, ozone water, compound tincture cinchona and nitric acid, chlorate potass, and muriatic acid, etc.

Among alteratives the best germicides are compound extract saxifragia ozonized, or compound phytolacca, iodide of potass, iodide of sodium. Chloride of gold and platinum are feeble remedies. Ozonized extract of saxifragia is the best remedy in the materia medica. Nitric acid one drachm to four ounces of tincture of cinchona compound. Dose.—One teaspoonful thrice a day. Most efficacious.

As to the skin affections we pay little attention to them, simply depending upon the constitutional remedies.

Ulcers in mouth contain not only syphilitic germ but the *oidium albicans*, and require touching when within reach with nitric acid, and mouth washes of chlorate of potassa and glycerine or borax.

If in the nose and pharynx, wash out the nose with the catarrh fluid ozone et chlorine.

If the germs are lodged in some internal organ, as brain, lungs, liver kidney, adhere to the treatment, but in addition apply to different parts of the body, beginning between the shoulders of stibiate plasters (made with one part of powdered tartarized antimony and three of adhesive plaster, melted together) the size of an ordinary card. As soon as good pustules are produced, poultice. This has the effect of attracting the germs to weakened parts, as the antimony is very depressing to the skin. Pursue this till the internal remedies kill the germs. In the arrangement of remedies tonics before meals, alteratives two hours after both well diluted with water; yellow dock, sarsaparilla, iodine.

ANÆMIA.

Poverty of the Blood.—A condition in which the red corpuscles are diminished or reduced to eighty, sixty or even lower than forty to the one thousand parts, instead of one hundred and thirty, which is the healthy standard. The liquor sanguinis is also poor in albumen, but may contain an excess of salts.

The common *causes* are poor food, over-work, absence of sunlight, deleterious trades, as operations in lead, mercury, phosphorus, the fumes of which are powerful agents in im-

poverishing the blood ; disease, hemorrhages, drugs, atrophy of gastric glands, defective assimilation, lack of fresh air and muscular activity, malignant disease, imperfect nutrition and impaired sanguinification, excessive loss or drain of vital secretions, excesses, passions, mental shocks, and it may be due to parasites, as the trichinæ, tænia, and other micro-organisms that find their way into the alimentary canal by food and water.

The Ordinary Symptoms of anæmia are great debility, pallor, blanched appearance of skin and mucous membrane, loss of appetite, in some cases with an intolerance of food, often, nausea and vomiting, constipation or diarrhœa. As a rule, in the earlier stages of the disease, the breathing is quiet only on exertion, which produces marked breathlessness ; but in the advanced stage we have great difficulty of breathing. Attacks of syncope or fainting fits are liable to occur, but not so frequent as one would expect ; the action of the heart is generally regular and quick, often very feeble ; the impulse is often widely visible, undulating and thrilling ; the area of cardiac dullness is increasing laterally, due either to dilatation of the heart or retraction of the lung. Aortic and pulmonary systolic murmurs, with palpitation in the large arteries of the neck often visibly pulsate and are the seat of local murmurs. The jugular hum is seldom absent, and pulsation of the jugular vein is often observed. The pulse is soft and compressible, quick, jerking, empty. There may be enlargement of the thyroid, protuberance of eye-balls, with vertigo and nausea, volitantes or specks or spots before the eyes, albumen in urine, œdema and dropsical effusions into the chest, pericardium, peritoneum and cellular tissue, amenorrhœa, occasionally fatal syncope, coma.

There is usually no enlargement of either liver, spleen or lymphatics, and albuminuria is slight and transient.

As the disease is often due to hemorrhage, epistaxis, hæmoptysis, menorrhagia, hæmaturia, we are liable during an attack to have a recurrence which should be guarded against ; but in the sanguine or hemorrhagic diathesis, this is so persistent that it is liable to occur even in the retina of the eye, being most abundant around the optic nerve entrance. It is frequently associated with white spots and areas due in part to leucocyte-like cells, in part to degeneration of retinal tissue. Slight febrile symptoms are the rule.

Anæmia is often divided into simple and pernicious, the latter term being applied to it when due to bad food, conjoined with pregnancy or lactation, or repeated pregnancies, or digestive or intestinal disorders. Malarial influences in the production of hæmaturia give us the best and most common illus-

tration of pernicious anæmia. It is not well to call the profound blood change that is set up by direct nervous shock, fright, grief, very pernicious, as it is a factor of simple anæmia.

The cause for anæmia should be sought for in two directions, diminished activity of blood formation, or excess of activity in blood destruction.

The degree to which the hæmoglobin may be diminished without being fatal, is about one-fifth of its normal quantity. After the blood is drawn we observe irregular massing of corpuscles into pear-shaped, biscuit-shaped or globular forms, and the coloring matter accumulating in the corpuscle at one point, indicating a greater proneness to form changes in healthy blood. At the same time can be seen small fragments of corpuscular matter, evidence of the disintegration of the corpuscles.

In our diagnosis of anæmia neither the spleen, nor lymphatic system is to show any evidence of change: if they do, then it may come under another head.

The theory of the blood formation of the bone marrow has not been sustained. The alterations in the blood and marrow in the form of altered corpuscles are met with in cancer, and they seem to be dependent on the cachectic state rather than the cause of it, and not in anæmia.

There are three other blood diseases that bear a close resemblance and analogy to anæmia,—a resemblance due to the factor common to all of them: the diminution of the oxygen-carriers of the blood. In anæmia, a decrease of red corpuscles; in chlorosis, an imperfect evolution of the blood; in leucocythæmia, an increased production of white corpuscles and an incomplete conversion of them into red; in pseudo-leucocythæmia there is deficient formation of red corpuscles; in leucocythæmia, hypertrophy of spleen almost invariably present; in pseudo-leucocythæmia, the lymphatic system greatly infiltrated.

Chlorosis is essentially a disease of nervous origin; centres of life are depressed, hence the process of cure is slow but progressive.

In the Treatment of anæmia general principles must be observed as to the removal of cause, enjoining quietness or rest in recumbent posture, attention to clothing and secretions, abundance of fresh air and sunlight. The true aim in treatment is to introduce as quickly as assimilation will take it up, the most nutritious food with mineral acids, iron, cinchona and other tonics. The nourishing diet embraces milk, raw eggs, restorative soup, raw beef, essence of beef, blood, fish, poultry, roast beef and mutton, at stated intervals with pepsin if digestion is feeble.

Our best remedies are those that increase blood formation most rapidly. Aromatic sulphuric acid and sulphate of qui-

nine: one ounce of the former to thirty grains of the latter. Dose—fifteen to twenty drops thrice daily in water; or compound tincture cinchona and simple syrup, of each two ounces; to which add two drachms of muriatic acid.—Mix. Dose—a teaspoonful thrice daily in water.

Benefit will be derived from iron, provided it does not cause irritation or fever, or provoke constipation, the acetate or muriated tinctures or iron by hydrogen.

To prepare the acetated tincture, take a pound of lath nails and cover with good strong, sharp cider vinegar, or dilute acetic acid, steep for ten days, then strain. Dose.—Half a teaspoonful in a glass of water three times in twenty-four hours, or fifteen drops of the muriated tincture in the same quantity of water, and as frequent. Iron by hydrogen operates well in the following combination:

Iron by hydrogen, thirty grains; sulphate of hydrastin, thirty grains; sulphate of quinine, twenty grains; solid extract nux vomica, eight grains.—Mix. Make thirty pills. One every four hours.

In administering those remedies, select one preparation of iron to one of tonic: give each every four hours, two hours apart. Open bowels with nutritive enemata or suppositories.

As the patient progresses to recovery ozonized glycerine should be given, as it supplies deficiencies in the blood. It is an invaluable remedy in anæmia—aids powerfully in the restoration of the devitalized fluid to its normal constituency.

When recovery takes place, a change of air to the sea shore, if good fresh food is available, is judicious.

CHLOROSIS.

A peculiar form of anæmia occurring in young persons of both sexes, but most common in the female about the age of puberty. There is a defect in the normal evolution of the red corpuscles—the development of the corpuscles up to a certain point, but no further. The red corpuscles are small, pale, and besides being dwarfed in size are diminished in number.

The cause is some nervous defect, as some demand upon the nerve forces; in males a common result of masturbation and deleterious trades; in girls precocity due to modern education, and many of the causes that operate in the production of anæmia.

Symptoms.—General symptoms of anæmia, with a wax-like hue of face, yellow pallor of skin, whence the name “green sickness.” Deficient or depressed appetite, fœtor of breath, heavy coat on tongue, skin dry, constipation, abundant limpid urine, weak quick pulse, hysteria. If a woman, pale, scanty menstrual discharge; if a man, his semen entirely destitute of

spermatozoa. Leucorrhœa in women, often a thin gleetty prostatic discharge in men. Languor, listlessness, head and back-ache, palpitations, cardiac and vascular murmurs. Occasionally enlargement of thyroid and protuberance of eye-balls.

The Treatment is very similar to anæmia. Same diet and attention to the secretions; bathing, followed by frictions, flannel clothing, and remedies to act more efficiently on the nervous system.

If that fail, put patient under the same treatment as for anæmia of the brain and spinal.

LEUCOCYTHÆMIA.

White cell blood, a morbid condition of the blood in which the white corpuscles are greatly increased in number while the red are much diminished, usually found connected with hypertrophy of the spleen.

As to the cause of this white cell disease of the blood, we can lay down nothing definite. It has been assigned as a sequelæ of diseased or caked spleen in third stage of intermittent fever specially, and other malarial conditions. It is difficult to harmonize the alleged causes as attributable to that gland. We know that the spleen is a ductless gland, the great store-house of red blood, that in cases of long fasting it plays an important part in the nutrition of the body. It acts also as a sort of safety valve to the heart in cases of chill or rigor, when there is a determination of the blood from the surface, and in the cold stage of ague it is greatly engorged. Whether this repeated congestion impairs its function if it does elevate or raise the white corpuscles to red we cannot say, or whether it is not really the poisonous action of the malarial, paludal and kindred germs on the blood factors that are the real source of the trouble.

Another idea has been broached, that the seat of the emotions, or moral nature of man, is chiefly located over the spleen and left kidney; that the great sympathetic has some mysterious influence over the blood formation.

Those that argue on this, cite the fact that women and other races in whom the development of the visceral brain is arrested or rudimentary, seldom, if ever, suffer from white cell disease,—a more plausible theory than localizing it in bone marrow.

The spleen with the lymphatic system, in some mysterious way, acts an important part in the elaboration of that vital fluid, all presided over by the nervous system. There is a defect somewhere, and one of great importance.

Symptoms.—Great weakness and debility, anæmic pallor, with all the other symptoms of anæmia; disordered respiration,

loss of appetite, mental depression, abdominal swelling, with enlargement and induration of the spleen; sometimes diarrhœa, at others, constipation, nausea, jaundice; often hemorrhage from nose, lungs, stomach; jaundice, anasarca, ascites, prostration, ending in death. Very chronic, lasting usually quite a number of years.

The morbid condition is characterized by an excess of white corpuscles in the blood, with great enlargement, induration of the spleen, often as large as a child's head, its proper structure obliterated, filled with coagulated blood, soft and friable, and a mass of bacteria. Oftentimes we have a peculiar inflammation of the retina.

In the Treatment of the white cell disease, our treatment consists of the best of diet, secretions well regulated, flannel clothing, rest and general alteratives and tonics, and the irritating plaster applied over spleen, and this continued for years. Among our best tonics are cinchona, hydrastis, mineral acids and iron, and our best alteratives are ozonized glycerine, iodide of potass with carbonate of ammonia, chloride of potass. compound extract saxifraga.

ADENOMA.

Pseudo-leucocythæmia is a peculiar disease of the blood, like leucocythæmia dependent upon an enlargement or hypertrophy of lymphatic glands; glands of neck, axilla, groin symmetrically enlarged, not inflamed or fused together; thoracic and abdominal glands also affected. Patient becomes weak, loses flesh, soon out of breath on exertion, symptoms of pressure at base of chest or abdomen, gradually increasing debility. It is also called Hodgkin's disease.

It is well known that the lymphatics preside over or are carriers of nutrition or lymph, but how they influence the blood in the production of white cells is unknown. The spleen, lymphatics, mesentery, suprarenal capsules, and the pink marrow of the bones constitute the great lymph channels; in each or all of them when obstructed, damaged or diseased, there is the prevailing characteristic cropping out—excess of white corpuscles.

Alteratives and tonics should be persevered with.

GRAVES' DISEASE.

This name has been applied to a complication of three symptoms often predominating in anæmia, chlorosis, leucocythæmia, phthisis, viz.: palpitation of the heart, protuberance of eyeballs, and enlargement of the thyroid gland. It is very common among women, and men addicted to masturbation are its victims. There is connection between the three symptoms and

the generative organs. A neurosis of the cervical sympathetic nerve is the cause of the affection. Cases are stubborn and chronic, depending on the cause as to whether there be syphilis, tuberculæ or other taint or germ, or simply a state of anæmia.

The treatment will depend on cause, ozonized remedies seldom failing in effecting a cure.

PURPURA.

A disease of the blood, in which there is a degeneration or breaking down of the red corpuscles and capillaries, which predisposes them to rupture and leads to extravasation of blood into the skin and upon mucous membrane.

The causes are generally a tubercular habit, or some influence calculated to depress the vital powers, as isolation, sameness of diet, monotony, absence of sunlight, sedentary occupations, over-crowding, deleterious trades, insufficient or bad food, glucose or sugar, over-work, privation, and indeed any cause that tends to impair the general health, and thereby the process of blood formation.

Symptoms.—Usually preceded by lassitude, faintness, pains in limbs, accompanied with marked debility and depression of spirits; pulse feeble and often frequent; heats and coldness; sallow and dusky complexion; often bleeding from nose; pain about stomach and craving food, although tongue be coated and breath fetid; palpitation, giddiness, constipation, swelling of the feet, albumen in urine. When acute, small hæmorrhagic spots, petechia on the body, when chronic, large patches, vibices and ecchymosis, and in all states there is enlargement, and, to some extent, softening of spleen.

Its duration is very indefinite, in some cases limited to a few days, in other cases months or years. It occurs at all ages, but especially from the age of puberty upwards.

As to the loss of vital tonicity in the red discs, and a rupturing of the walls of the capillaries permitting of the extravasation, there can be no doubt, but that the same exists in scurvy. Extravasation in both affections is liable to occur from the free surface of mucous membrane in the skin, in serous cavities and within the parenchyma of organs. In purpura there is an entire absence of the swollen, spongy, pallid, or livid gums, and peculiar factor that we have in scurvy. There is as a rule more depression of vital power in scurvy than in purpura; also swelling of the muscles and joints rarely takes place in purpura.

Purpura when occurring alone is not a serious affection, but purpura hæmorrhagic implies great danger from loss of blood and its extravasation into serous cavities of brain, lungs &c.

Treatment.—The management of a case is very simple—attend to skin, kidneys, bowels, flannel clothing, rest, abundance of fresh air, sunlight, plenty of good animal food, and fresh fruit and vegetables.

Digitalis should be given to keep hæmorrhage in abeyance, to diminish the area of the circulating fluids by its action on the arteries—an invaluable drug. Cinchona and mineral acids as follows: Compound tincture cinchona, four ounces; aromatic sulphuric acid, one ounce.—Mix. One teaspoonful thrice daily in water.

Another good method of treatment is fifteen drops of muriate tincture of iron in alternation with three-drop doses of muriatic acid in water. Turpentine, phosphoric acid are often of utility.

Black Leg.—This is simply an aggravated form of purpura, in which one leg is usually affected, and that the left, often of a purple or livid color from the toe to the groin, and in bad cases perfectly black. It is very common among pork eaters, lovers of sour krout, and epicures who have potatoes boiled in vinegar, and also among those who are compelled to live on preserved animal food in which nitrate of potassa and pearl-ash has been used in curing.

The lymph canals, spleen, suprarenal capsules, and pink marrow of the bones are seriously affected, hence recoveries are slow, often taking some months to get around.

The same treatment as for purpura, but even a more generous, varied diet is indicated, and an absolute avoidance of all canned, salted meats, and partially decomposed vegetables with vinegar. In no case should there be any deviation from any method to increase the perfect blood formation.

SCURVY.

A complex disease of the blood, combining the essential elements of anæmia, purpura, and a deficiency of the alkaline constituents of that fluid.

Its cause is supposed to depend on a smeness of diet, a want of variation, and to the absence of food deficient in the salts of potash, as fresh meat, fruit, vegetables, milk.

Symptoms.—The earliest and best marked symptoms are observed in the countenance; the face is pale, and may be bloated; the eyes and lips have a dirty hue; the features are somewhat depressed; the gums are spongy, livid, and bleed when slightly irritated; teeth loose, breath very offensive. There is great lassitude and debility, pains in the legs, limbs very feeble, joints stiff, unable for any exertion. There is great difficulty of breathing, skin dry and harsh, sometimes rough and scaly, especially around joints, oftentimes puckered; al-

though more generally it is shining, with patches or spots of brown, blue, black or livid hue. These patches are first seen on the legs or thighs, but generally extend over the entire body, except the face, and the disease continuing, the feet and legs become œdematous.

If not arrested at this point, the symptoms increase in severity, the gums become more livid and swollen, the breath more offensive, the pains more severe, and so with the other symptoms. In the later stages there is often hæmorrhage from the mucous canals, and the loss of blood is often so great as to prostrate the vital power of the patient.

In these stages, the evacuations from the bowels are often frequent and offensive, and we often have scarbutic dysentery, albumen in urine. The pulse is jerking, appetite impaired, intellectual faculties slightly affected.

In nearly all cases there is a tendency to faint on the slightest motion or exercise, which is often fatal.

Healthy Blood.—Water, 788.8; solid constituents, 211.2; fibin, 3.3; albumen, 67.2; blood corpuscles, 133.7; salts, 6.8.

Blood in Scurvy.—Water, 847.9; solid constituents, 150.1; fibin, 6.5; albumen, 84.0; blood corpuscles, 47.8; salts, 9.7.

Treatment.—Rest in the recumbent posture; attention to liver, skin, kidneys; fresh air, generous diet, wholesome animal and vegetable food—fresh meat and boiled fish—juicy, rare meat; all kinds of vegetables, with fresh fruit in abundance. Precisely the same treatment as for purpura, with the exception that five grains of chlorate of potassa in water should be given three times a day, in order to supply the deficiency of alkalies in the blood. Cinchona and mineral acids are of great efficacy.

In land-scurvy, change of diet is of the greatest importance, and an avoidance of salted meats and fish.

Pellagra, or Scurvy of the Hills, used to be confined exclusively to the Alps, but several well-marked cases have taken place in Montana and Arizona. It is a species of scurvy—a blood disease, with an altered state of skin, the eruption being symptomatic of the blood disease. The cause is a want of variated food, or insufficient nourishment.

It ends in mania, imbecility and slow death with softening of brain and spinal cord.

When first seen patient should be removed to better quarters and have a variated diet, because when once established all remedies fail.

The best success has attended the use of a highly animalized diet, with vegetables. The glycerite of ozone and kephaline operate most favorably in aiding blood formation, their use being pre-eminently constructional to brain and blood.

BRONCHOCELE.

This is characterized by an enlargement of the thyroid gland. The entire gland may be affected, or its centre, or either lobe. The swelling is usually unassociated with pain, and causes little inconvenience, beyond the deformity it produces, unless it presses upon the adjacent parts.

Causes are very varied. It may be due to water impregnated with lime or magnesia; to tuberculæ; to irritation, reflected from the organs of generation to the nerves that supply the thyroid, causing enlargement and congestion; to uterine disease, or an anæmic condition of blood.

It is a true hypertrophy and is divided into three forms, according as the vascular, glandular or connective tissues are involved.

(1.) **Vascular Goitre** is most common in this country, and consists merely of engorgement, congestion from suppressed menstruation, masturbation, gonorrhœa, amenorrhœa.

Branches of the sympathetic nerve covering the anterior portion of the uterus, clitoris, penis, are reflected over the mamma and thyroid, hence the connection. Besides, the gland, from its peculiar function of aiding in controlling the circulation in the brain, is very profusely supplied with blood-vessels and is liable to take on congestion from very slight causes. Vascular goitre often terminates in rupture of vessels, blood absorbed and recovery. In other cases calcareous degeneration may take place.

(2.) **Glandular or Cystic Goitre** consists in a development of the glandular capsules and their distension, and is filled with a gelatinous fluid.

(3.) The entire transformation of the structure of the thyroid into a calcareous or chalky mass.

Symptoms.—The whole gland may be swollen or only the centre or side of it. Frequently no inconvenience but the deformity. In other cases distressing symptoms are produced by the pressure upon surrounding parts, and respiration and deglutition may be rendered painful and difficult by the compression of the trachea or œsophagus. In other cases severe constitutional symptoms, as anæmia, palpitation, mental depression, dyspepsia; irregularity of uterine function, as scanty menstruation, profuse leucorrhœa.

Its duration is somewhat tedious; much more common among women than men.

Treatment.—The cause must, if possible, be ascertained and removed; such as water, or irritation, or disease. Then a general alterative and tonic treatment inculcated, with the very best of food. Whether caused directly by tubercula or not, that condition is inseparable from it; hence special drugs for the

destruction of that germ, such as iodine and bromine in their various forms, tincture of iodine, iodine and glycerine, iodide of starch, iodoform. Bromine is not so active. Fluoric acid in an alternated solution is acquiring great repute in the cure of a great number of cases. Locally, organized clay is extremely efficacious, taking care to cause no redness of the skin.

CRETINISM.

This may be regarded as the utmost extent of deterioration that can be brought about in a human being by tuberculæ without death. It may be regarded as an imperfect formation or development of the body, accompanied by a dwarfish stature, malformation of the head, which is flat on top and spread out laterally; mental imbecility, countenance vacant, devoid of intelligence, physical deformity in various degrees, mouth gaping, tongue protruding, saliva flowing, bronchocele, brutalized habits, squinting, deaf muteism, blindness.

This disease is common in valleys or gorges in which there is an absence of sunlight, and the inhabitants are necessitated to drink ice and snow water. In addition to those, stagnant air, filthy abodes, the ice or snow water loaded with calcareous matter, with extreme poverty, bad food, sensuality and other forms of mental and physical degradation. Consanguinity and incompatibility of temperament may also be a cause.

When cretinism is developed it never can be transmitted: an impure sustained breed cannot be produced. Procreation ceases; a cretin never produced a cretin, nor an albino an albino. There is no establishment of a morbid race.

Probably when our population reaches two hundred thousand millions, our inhabitants will be restricted to given areas, that the disease may be seen in our mountain gorges.

The only treatment is the removal from the predisposing or exciting causes; judicious moral control, careful mental training, pure mountain air, nourishing and variated diet, with the general treatment for tuberculæ.

EMBOLISM.

A morbid state of the blood, in which it has a tendency to clot or form fibrinous concretions, which either adhere to the walls of vessels or are carried onward by the current of the circulation, and plug up or impede its normal course.

The causes are varied: in-door life, insufficient aeration of blood by skin or lungs; its imperfect decarbonism by the liver in drunkards; the pressure of the gravid uterus on the liver, and non-oxygenisation by pressure on the diaphragm. It is present in ague, typhus and other fevers; also in croup, diphtheria, pneumonia, scarlatina, erysipelas. It is also caused by

diseased vegetables, fruit, meat and cereals, such as ergot of rye, *ustilago maidis*, so that ergot during parturition produces it in mother and child, and is one of the most common causes of death to both.

In an examination of the blood after death there is usually a large coagulum found in the heart; fibrinous specks, patches, plugs can be seen in brain, lungs, heart, liver and arteries. On an examination of these clots or plugs by the microscope, they seem, in nearly all cases, to be a mass of bacteria.

It is often difficult to recognize the disease during life as the symptoms are quite variable, but if any of the above causes exist, it is positively present to a greater or less degree, and particularly so if the patient complains of strange sensations about the heart, and has a tendency to fainting.

In all diseases in which this is present, or where it is suspected, the patient should be kept as quiet as possible in the recumbent posture, never being permitted to sit up, and nothing allowed to disturb him in any way, and have an abundance of fresh air. The diet should consist of milk, eggs, soups—the secretions attended to.

In order to meet the pathological condition of blood, tincture of belladonna and alkalies should be administered.

All acro-narcotic remedies have a wonderful effect in causing and maintaining a fluid state of the blood. Belladonna has this property in a high degree. A teaspoonful of the tincture in half a tumbler of water, of which a teaspoonful should be given every one or two hours, never administering it so frequently as to cause dryness of throat.

In the sesqui-carbonate of ammonia we have an excellent alkali. This either alone or combined with a few grains of bicarbonate potassa soon relieves the condition; besides, the ammonia is destructive to living germs in the blood. Bromide of ammonia answers well if a deposit of fibrin has taken place. Sulphate of soda is also valuable, so is the permanganate or chlorate of potassa. In diseases associated with embolism, iron and mineral acids should be avoided in treatment.

The term *thrombosis* is applied to a clot of fibrinous blood, causing a partial or complete closure of a vessel.

PIARRHÆMIA.

Milkianness of the serum of the blood, or fatty blood, is met with in diabetes, chronic alcoholism, disease of the liver and kidneys, especially in Bright's and Addison's disease, in dropsy, nephritis and pneumonia.

The presence of free fat and molecular albumen in the blood may be the result of indigestion, pregnancy and lactation. In the process of digestion the lactescence of the serum begins

about two hours after the ingestion of food, and continues for a few hours.

The serum is found turbid, opalescent and semi-opaque, a condition, however, which is only transitory, and due to the absorption of fatty matter, formed into an emulsion by the pancreatic juice and absorbed as such in the duodenum. It is entirely due to the presence of fat granules, and molecular granules of albumen. The passage of chyle into the blood renders the serum turbid, the turbidity lasting until fatty matters enter in combination with the free soda of the blood. This condition is the result of disease.

Various explanations have been offered as to the occurrence of fatty blood in disease. Some attribute it to the passage of unaltered chyle into the circulation; others declare that the fat is set free in the blood for the want of a free alkali; while another class maintain that it is fatty degeneration of the albumen of the blood; and others insist that it is dependent upon a new combination of fat. It is never found existing as an independent affection, being invariably associated with some other disease, usually of the liver or kidneys.

GLUCOHÆMIA OR MELLITURIA.

A saccharine condition of the blood. This may be due to various causes, as in certain depressed states of the stomach we have the starchy elements of the food converted into other compounds and absorbed into the blood. Sugar is a normal secretion from the liver in health, in disease it may be excessive. The use of alcohol so irritates that gland that there is an excessive secretion; so with other liver irritants. If there is an irritation of the eight pair of nerves at their origin in the fourth ventricle, sugar is generated by the liver in such abundance that the oxygen inhaled by the lungs is incapable of burning it up, hence it is thrown back into the blood and thrown off by breath, sweat, tears, saliva, urine, fæces.

In health, the sugar formed by the liver passes into the hepatic veins, the inferior vena cava, the right cavities of the heart, and thence by the pulmonary artery to the lungs, when it is consumed; but when irritation exists, the sugar is in excess, and there is not sufficient oxygen inhaled to burn it up.

The irritation may be in the liver or brain, sometimes in the stomach, the irritation being transmitted by the pneumogastric to the brain, from thence transmitted to the liver, causing it to secrete sugar or a glucogenic substance. The treatment is exactly the same as that laid down under *Diabetes*, bearing in mind the essential utility of remedies to reconstruct the shattered nervous system, as the glycerite of kaphaline, general tonics, and alteratives.

URÆMIA.

When from any cause the functions of the kidneys become impaired or suppressed, urea is no longer eliminated by those organs. It accumulates in the blood, producing what is termed uræmia.

Probably several forms of poisoning are present, such as where the urea is decomposed into carbonate of ammonia; and when such a decomposition does not occur, probably there are also other poisons due to incomplete metamorphosis of nitrogenized waste into urea.

This theory explains the variety of symptoms present, such as stupor, coma, stertorous breathing, epileptic convulsions, intoxication, twitching.

It may come on abruptly with little warning, or may be preceded by debility, impaired vision, obstinate vomiting or diarrhœa; the breath has an uriniferous or ammoniacal odor. It is invariably present in three stages of Bright's disease.

Besides being due to structural disease of the kidneys, it may be present in pregnancy and parturition, due to pressure of the uterus, producing renal congestion. Beer drinking is a common cause.

Uræmic poisoning or intoxication is easily distinguished by attention to the following points: the urine is albuminous, scanty, or of a low specific gravity; œdema of the cellular tissue; fits are preceded by delirium, headache or giddiness, pupils dilated and fixed, breath ammoniacal, skin emits an uriniferous odor, disease of kidneys. And if these are not sufficient, paint a portion of the skin with cantharidal collodion; from the blister so produced take the serum and place it under a microscope, and the crystals of urea are easily recognized.

The treatment of cases of uræmic poisoning must be upon general principles. An attempt should be made by warm bath and jaborandi to get up a powerful action on the skin. The use of the jaborandi or its active principle does not require the use of diaphoretic teas, hence it is our most valuable diaphoretic.

One-twelfth of a grain dose of elaterin should be given every three hours, so as to get a free serous action of the bowels. If successful, benzoate of soda or benzoic acid has a wonderful effect in neutralizing this blood poison.

ACHOLIA.

An arrest of the function of the liver, so that matters from which the bile is formed accumulate in the blood, producing toxæmia. It is a condition liable to occur in all diseases of the liver, as inflammation, acute atrophy, cystic, starchy and fatty degeneration, cancer, impermeability of the gall duct, gall stones.

Symptoms will vary as to cause. There is apt to be peculiar nervous excitement, jaundice, delirium, convulsions, prostration, coma, hæmorrhage from nose, stomach, bowels, ecchymosis, etc.

Treatment.—Active purgation with compound powder of mandrake, and a drop of croton oil. Nitro-muriatic acid in alternation with phosphate of soda. Benzoate of soda and other remedies used in chronic inflammation of liver should be tried. Stimulation over liver with nitro-muriatic acid, followed with hot packs of warm water acidulated with the same acid, and also to the entire body.

ICHORRHÆMIA.

A morbid state of the blood caused by the introduction of ichorous or putrid matters. Sometimes called septicæmia, when fatal without any local formation of pus, and pyæmia, when secondary abscess follows.

Among puerperal women and surgical cases, very liable to appear if proper treatment or precautions are not carried out rigidly.

Ichorrhæmia may manifest itself in a variety of ways. In some cases the patient seems to be so immediately and deeply affected by the morbid poison, that she or he dies before any local phenomena are exhibited. In another class of cases the intensity of the poison seems spent upon the liver or mucous membrane of intestinal tract; in the one case, nature appears to make an effort at elimination by the discharge of a copious quantity of black bile; in the other, by a severe attack of diarrhœa or dysentery. In another class of cases, the serous membrane of the pleura, heart, peritoneal coat, or even the cellular tissue bear the brunt of the poison, so that pleurisy, pericarditis, peritonitis, erysipelas and boils may be present. Another class of cases exhibit themselves in profuse suppuration of liver, lungs, joints, glands, eyes and ears.

General symptoms are, rigors, sweating, rapid pulse, sallow look, sweet hay-like odor of breath, diarrhœa, dysentery, with inflammation of serous membranes, rapid wasting, feebleness, prostration.

The absorption of poisons containing the living germs of disease are the most productive of septicæmia, as the lochial products, the punctured wounds in dissection, the bacteria of erysipelas, bites of enraged men, rabid animals, venomous reptiles and insects, inoculations from scratches or abrasions from the secretions of those affected with contagious diseases. These living poisons multiply rapidly. They are taken by the veins, the lymphatic system becomes involved, and the entire blood the field of a living deadly poison.

In the treatment the powers of life should be well sustained,

free full incisions made into suspected parts, and antiseptic poultices of yeast, charcoal, wild indigo applied; strong beef tea; pain subdued by anodynes. There is no elimination of living poisons,—they must be discharged in the blood; hence our best and most powerful antiseptics should be used. Remedies like the salicylate of soda, that is capable of destroying the most virulent of living poisons, rabies and small-pox: one part in twenty thousand will prevent saccharine fermentation under the most favorable circumstances, and destroy disease germs. Carbolic acid and tincture of iodine, chlorate and permanganate of potassa, etc.

RHEUMATISM.

A morbid condition of the blood, in which there is a superabundance of lactic and butyric acid in the blood, which has a special affinity to irritate, if weak, the white, fibrous tissues of the body, as well as to irritate the fibrin of blood and muscle, a formidable disease, owing to the suffering it engenders, the intensity of fever, and the damage that it is likely to inflict upon the heart and blood.

The predisposing cause is an impairment of the nerve centres, the co-ordinating chemical centre. The exciting cause, the generation of acid in the stomach, in the muscles and elsewhere. The nerve force which regulates the digestive secretion being impaired, the process of digestion becomes sluggish and retarded; food ferments, acids are evolved, the principal of which is lactic acid, which may be retained in the blood or eliminated. In healthy digestion the starch of the food is converted into lactic acid, which combines with the oxygen to form carbonic acid gas, in which state it is excreted by the lungs; but owing to some unknown nervous defect, the lactic acid, instead of being so changed and thrown off, accumulates in the blood. But this cannot, in all cases, account for the great superabundance of acids. Whence, then, comes the lactic and butyric acids of rheumatism, if not from digestion? Whence, then? The hæmoglobin of the venous blood, through the lungs becomes oxyhæmoglobin. Hurried to the tissues, the oxygen of the arterial blood passes from the blood into the muscular tissue, where it is packed away. The oxidation takes place in the muscle itself. The muscle is always producing and discharging carbonic acid gas, and where it contracts frequently there is an increase in that gas. With much of its oxyhæmoglobin reduced, the blood passes on as venous blood with its carbonic acid gas. When it arrives at the lungs the gas is discharged. The change in the muscular structure, the fixing of oxygen and exhalation of carbonic acid gas is regulated by the nervous mechanism, the co-ordinating chemical centre,

which restrains chemical action. Instead of the muscle fixing oxygen and throwing off carbonic acid gas, suppose some intervening change takes place in some degree, and what are those changes? One of the first, the reaction of the tissue becomes acid; the acid produced is lactic acid. In this way causes can be enumerated, all traced back to the original nervous defect. Whether that defect be a condition analogous to tuberculae, we cannot say. Isolation, sameness, monotony, deleterious trades, insanitary abodes, tobacco, whisky, excess of starchy or saccharine food, are prolific causes. Gastric catarrh is a direct cause.

Cold, damp, exposure, injuries, mechanical violence operate in depressing white fibrous tissue, cartilage, bone, weakening tissue rendering them obnoxious to the irritating effects of the acids circulating through them in the blood.

There are several forms: *acute*, when of short duration, and accompanied with fever; *sub-acute*, same as acute but no fever; *chronic*, when long continued and not accompanied with much, if any, fever, nor much pain; and rheumatoid arthritis when joints suffer inflammation, with evidences of both gout and rheumatism.

The essential symptoms of rheumatism are an intense acid diathesis, breath, saliva, sweat, urine, and, if the bowels are loose, acid stools; almost all that is taken as food or drink is converted into acid. There is a perfect perversion of nutrition.

In the acute form, these symptoms are followed by languor, restlessness, rigors and a fever, with stiffness and itching on the the body, as if following exposure to cold or damp. Painful condition increases pain or tenderness in one or more large joints; very high fever, great constitutional disturbance, temperature, 102° to 103° , fatal cases, 105° to 110° . Pulse full and quick, bounding 140 to 160. Patient very helpless, unable to move or sleep, pain in joints agonizing; skin bathed in sweat of a disagreeable acid or sour odor. Usually constipation, sometimes diarrhoea; tongue moist but thickly furred. Urine loaded with uric acid, copious brick dust sedimen, or more frequently with urates, very acid. If the pleura, pericardium and endocardium, periosteum, synovial membrane, cartilage, bone are enfeebled by any depressing influence, the acid, in its passage into the blood through the weakened structures, gives rise to great inflammation and a tendency to metastasis; for if the standard of vitality is raised by local stimulants, the inflammation at once subsides, and may manifest itself in another most serious change; the pericardium and endocardium of the heart becoming affected. Often complications with heart, pleurisy, pneumonia, inflammation of brain and its membranes.

It is easily diagnosed by the extreme acid condition of the body and its secretions, and a deficiency of alkalies. The irri-

tating action of the lactic acid on depressed white fibrous tissue, or fibro-serous membranes, which enter into the formation of joints, sheaths of muscles, tendons, pericardium, membranes of brain and bone may be of a serious nature. The erratic form of the pain is due to the continuity of structure involved. The heart, of all organs, is the most likely to suffer, as it is so abundantly supplied with a large ramification of the great sympathetic, and there is probably no organ in the body that suffers so badly from the use of tobacco as it.

Rheumatism mostly pursues a very definite course or form of its own, and deviations from that bodes no good. So long as the symptoms follow the usual and orderly evolution, though that may be severe, there is not much danger; but when unusual or strange symptoms arise, when danger threatens from unknown quarters, we do not like it. Articular rheumatism, though severe, when confined to joints or with but moderate cardiac complication, is a tolerably straightforward matter; but rheumatic fever, with little joint affection and much delirium, or lung œdema, is quite a different thing.

Treatment.—This is somewhat varied; still, there are certain indications to carry out in all cases. We begin with an emetic, follow with a saline cathartic and a vapor bath, the patient put to bed between blankets, and have a flannel shirt, no cotton or linen being permitted near the skin; all painful parts wrapped carefully in woolen cloth, and the most perfect quietness and rest observed. If the heart suffers, apply mustard plasters at once over it.

The fever should be controlled with suitable doses of tinctures of aconite and veratrum, and pain allayed with small doses of pulverized opium and diaphoretic powder. No rheumatic patient should experience pain—it is an injury to nutrition. Sponging the body with strong alkaline wash three times a day, heat to feet, the same as other fevers, must not be omitted. The diet, milk and lime water. For two or three days, and no longer, there should be made an effort to neutralize the acid of the body, and supply alkalis to the blood by the administration of twenty or thirty grains of bicarbonate of potash every three hours, and if there is much bony pain, five grains of iodide should be added. There can be little doubt but that potash shortens and alleviates the condition, but its continuance becomes injurious to the stomach, an organ that we must take care of, make much of, and sedulously avoid giving it offence; but the iodide must be pursued with if in the bones. Besides controlling the fever with aconite and veratrum, relieving pain with persistent doses of opium, we must maintain the force of the heart, support the general strength and prevent the formation of lactic acid in such abundance. There are two remedies of great

value, sulphate of quinine and salicylate of soda. The quinine is best given with aromatic sulphuric acid; it stimulates the brain and cardiac plexus of nerves, lowers the temperature and pulse; it prevents the transference of oxygen to the red corpuscles, and produces a decrease in the acids. The salicylate of soda enters into chemical combination with some of the constituents of the tissues and prevents their change. Wine of the root of colchicum is a very important remedy; it should be given in fifteen-drop doses, at proper intervals, to act slightly on the bowels. If the skin keeps dry, keep up perspiration with compound tincture of serpentaria. There is no drug that acts so favorably in improving the co-ordinating chemical nerve centre as tincture of cimicifuga race., and no case of rheumatism should be treated without its use. It is an invaluable drug. The dose will range from ten to thirty drops, never administering it to produce headache or ringing in the ears. It also acts as a stimulant on the class of tissues implicated in the white fibrous, but not so active in that particular as tincture of white bryonia. To raise the standard of vitality of that class of tissue with bryonia, use asclepias. Iodide of potass has little effect either in the formation or elimination of uric acid.

Another good method of breaking a case up in a few hours is, after attending to the preliminaries of rest, veratrum, opium, bathing, and a milk and beef-tea diet, to administer three times a day the following compound: five grains of iodide of potassa, five of carbonate of ammonia, five drops of fluid extract of cimicifuga race. Dissolve and mix in a glass of water. Between each dose give two grains of quinine and three grains of the solid extract of hyosciamus. Mix and make into two pills. This has a most salutary action in causing a complete arrest of the disease.

When uncomplicated, the duration of rheumatism is short with a judicious use of the above remedies. If fatal, mostly due to some cardiac affection, and that organ, above all others, must be looked after, and if the mustard or dry heat is not sufficient to establish a renewal of life, then the pulverized opium and quinine must be given, and the heart's action stiffened by small doses of digitalis.

Tonics, in the stage of convalescence, diet guarded; mutton, poultry and beef must not be given too soon.

CHRONIC RHEUMATISM.

Sometimes a sequel to an acute attack, or it may come on independently, of itself. The fibrous textures around the joints, or the fibrous envelopes of the nerves, or the aponeurotic sheaths of the muscles, coverings of tendons, periosteum, etc., are those that suffer most. It receives different names from the locality

of the irritation; as neuralgia, when it attacks the nerves; lumbago, when the muscles of the loins are affected; sciatica, when the sheath of the great sciatic is involved; pleuradynia, when the pleura and intercostal spaces are implicated. In any case there is usually little constitutional disturbance; but the sufferer is constantly annoyed and his existence made very miserable from chronic pains, causing him to be restless at night and destroying his comfort in the day time. In some instances the pains are worse at night, being aggravated by the warmth of the bed; in others, warmth affords the greatest relief. The former is generally the case when the blood is circulating a poisonous material through the system, as in venereal rheumatism, or in that due to derangement of the digestive organs with alcohol; the latter in rheumatism of an erratic kind, dependent on simple mal-nutrition, and brought into activity by cold.

There is little difficulty in recognizing chronic rheumatism; the mal-nutrition, the acid diathesis, the wandering pains attacking the white fibrous structures; the metastasis when the standard of vitality is raised, the condition of the urine loaded with uric acid.

The management of chronic rheumatism requires great tact and good judgment. The general health should be improved, flannel clothing, avoiding exposure to cold or damp or injuries; comfortable surroundings, cold douche and shower baths, watch the diet, forbid saccharine agents and animal food; neutralize acids, enjoin rest, administer tincture *cimicifuga* and aromatic sulphuric acid, and quinine. Then alleviation of pain, and special remedies, such as:—

Compound syrup *stilligia*, four ounces; iodide of potash, three drachms; bicarbonate potash, two drachms; tincture of *bryonia*, one drachm; wine of *colchicum*, half an ounce.—Mix. A teaspoonful thrice daily.

Other excellent combinations can be made, as *dulcamara* and iodide of potass, *sassafras* and iodide of sodium; sulphur, nitrate of potassa, *phytolacca*, and *iris versicolor*, or saccharated sulphur.

Local applications, either stimulants or anæsthetics, are not to be overlooked, as the irritating plaster or belladonna plaster in chronic rheumatic pericarditis; menthol dissolved in olive oil, with the addition of a little chloroform, is excellent in *sciatica*, rubbed in along the course of that nerve; dry cupping, iodide of sulphur ointment, iodoform, tinctures *aconite*, *belladonna* and chloroform, or oils of *stilligia*, *solidago*; or oils of turpentine, hemlock, *sassafras*, *origanum*; either one make a splendid liniment. The alkaline waters of some natural springs as those of *Saratoga*, *Virginia*, and others, act well on the system.

GOUT.

So called because it is supposed to be produced by a humor dropping into the joints. It is a constitutional disease, giving rise to an inflammation of a specific character, usually affecting the smaller joints. There is a great tendency to hereditary transmission in the disease. It is usually accompanied by great pain in the affected joints, fever, with general disturbance, and especially by disorder of the digestive organs. The disease has a tendency to recur again and again with every nervous shock.

Causes.—An excess of food by supplying an overabundance of nitrogenized material, for the blood creates an excess of urea and uric acid. Malt liquors, wines, sedentary habits, want of exercise, irregularity, lead poisoning, excessive mental strain, worry.

It gives us urate of soda or uric acid and soda, which exist in the blood in a separate state, but a depression of the nervous system causes their union. The morbid state is aggravated by gastric and intestinal disorder, impaired appetite, furred tongue, acid or bitter eructations.

The disease cannot be developed unless the blood contains a considerable quantity of uric acid and soda in some form. They never exist in the blood in combination before an attack of gout, but the moment they combine the disease is produced. Nerve force in health keeps them separate, so that they can be eliminated by the skin, kidneys and bowels, but as soon as nerve force is lessened or impaired these two unite. Good nerve force keeps them apart, but in shocks or debility they unite and crystallize as urate of soda. In lessened nerve force the uric acid seizes the urate of soda, and this is deposited in the tissues generally most remote from the heart and brain. This union generally arouses the nervous system, and a febrile effort takes place and it is warded off, but in subsequent attacks the febrile effort fails. In youth, before care, anxiety and disappointment have well-nigh worn out the brain, the nervous system is active, and in spite of dissipation and indulgence gout is rare, but as soon as age and care stamp their mark upon the great nerve centres, gout too often appears.

Symptoms.—The attack may be preceded by debility, heart-burn, flatulence, dull pain in left side of chest, irregularity in heart's action, dry skin, urticaria, urine loaded with phosphates and urates containing albumen. It may come on suddenly in the night with acute pain in the great toe, heel, instep or wrist; rigors, followed by fever with great irritability and restlessness, tenderness and swelling of the affected part. The attack passes off, an interval elapses of length proportionate to the care taken, and then another attack follows.

The local affection takes place in weakened parts, then the inflammation and exudation takes place, so there is liable to be a change of location according as the vital forces of a part are strong or feeble. In this manner a metastasis occurs from the joint to some internal part, as the heart, stomach, lungs, brain, etc. When the kidneys act imperfectly, and there is a retention of the urate of soda in the blood, it is taken up and deposited in other structures to which it has an affinity, as cartilage, bones, fibrous tissue, forming tophi or chalk formations, or stones consisting of urate of soda. They are found in innumerable situations in chronic gout, in the eyes, ears, heart, joints, etc.

In the gouty diathesis, without local manifestations, are to be found neuralgia, dyspepsia, palpitation, syncope, congestion of liver, piles, anæmia, pains in head, toothache, tonsillitis and asthma; besides it is a common cause of disease of heart, arteries, kidneys, and, indirectly, of apoplexy, etc. Gout presents itself in so many different forms that it is often difficult to recognise it when we meet with it, and many cases are overlooked because the disease is not found in its accustomed seat.

One patient may suffer from bronchitis, another from psoriasis; one may have gravel, another asthma, or, again, neuralgia of the face. One may be alarmed by his having to be treated for an apparent gonorrhœa, while another may have piles or tenesmus; all of which are but local exhibitions of the constitutional affection.

Treatment.—The general principles of treatment consist in perfect rest between blankets, attention to the condition of the skin, kidneys and bowels; to the former, warm baths, to the latter, with salines, so as to relieve the overloaded heart and blood-vessels. For any irritation about the heart, mustard applied and to be repeated. The following is to be given at repeated intervals, so that the sensorium experiences no sensation of pain:

Pulverized opium, ten grains; Dover's powders, thirty grains; pulverized nitrate of potash, sixty grains.—Mix and make twenty powders. Dose, one, as indicated.

If there is fever, aconite and veratrum viride. To cut short an attack, nothing excels the phosphate of quinine in alternation with the wine of the root of colchicum. These two remedies act quickly and meet the indications most promptly. As to the dose, from one to three grains of the quinine every three hours, with colchicum enough in alternation to slightly move the bowels, the dose necessary being usually from fifteen to thirty drops. If the evacuations from the bowels are too frequent diminish the quantity, but do not discontinue.

As soon as the acute stage is over, the same remedies may

be continued, although it is often advisable to change to some of the following drugs:

Carbonate or bromide of lithia possesses remarkable medical properties, being one of the most soluble salts of uric acid that is known.

Sulphur in alternation with liquor potass is extremely efficacious in dissolving and eliminating the urate of soda.

Iodide potass is an invariably good remedy.

Salicylate soda has the remarkable property of preventing the formation of urate of soda, and should be given in alternation with quinine.

Benzoic acid administered after meals prevents the formation of the tophaceous deposits.

Phosphate of ammonia decomposes the insoluble lithates of soda and leads to absorption of them when deposited.

In chronic gout, or a state nearly allied to gout, or half gout, there may be no local inflammation, pain or obvious swellings, or the gouty paroxysms, but it works more silently and is characterized by the abundance of lithates in the urine. There is apt to co-exist signs of ill-assimilation of food, with aches and pains, unaccompanied by any perceptible change in the aching part.

A very common and prominent symptom in these cases is vertigo, associated with dull headache, occipital pain, occasional irregularity of the heart, oppression about the heart, memory fails, and an exercise of the mind is laborious. Frequently the gastric derangement is not well marked, so that the patient is apt to believe that the trouble is all in the head.

On examination of the urine in these cases, we find the lithates in great abundance, urine scanty, highly colored, specific gravity greatly increased, and readily deposits urates of a pink or brick color, and crystals of uric acid.

In the treatment of these cases, rest from mental labor, a plain, rather spare diet, free exercise in the open air, and the bowels kept regular with salines once a day. The remedy from which most satisfactory results are obtained is the wine of the root of colchicum, in small doses, barely enough to move the bowels.

The diet in gout should be nutritious, as milk, arrow-root, tapioca, fish, oat meal, fruit, vegetables, avoiding animal food as much as possible.

Women are comparatively free from gout. This immunity is due to sexual causes, the character of her nervous system, and the rudimentary condition of her great sympathetic. A gouty, bald-headed woman may be said to have left her sex, cast off the woman and become the man.

Among males, whose nervous systems are exhausted by any

kind of drain, or worry, or study, the gouty diathesis is very prevalent, and it lies at the basis of nearly all cases of Bright's disease of the kidneys.

RHEUMATOID ARTHRITIS.

A chronic inflammation of joints, with elements of both gout and rheumatism. Causes are the same as laid down under gout and rheumatism—a combination of the two conditions.

The ordinary symptoms are pain, swelling and stiffness of affected joints. If the case is acute, it may come on quickly, with rigors, fever and general disturbance; but usually the affection is chronic, commencing with languor, restlessness, irritability and vitiated secretions. The joints become stiff and painful; effusion into the synovial membranes causes them to appear swollen and distended, while the limbs generally waste; and if the hip, knee or ankle be the parts affected, there is lameness. Fluctuation can sometimes be detected, or a distinct kind of crepitus may be felt, a peculiar cracking of the joints on movement is often observed. If the disease has lasted some time there may be thickening of the articular covering, equal to bony ankylosis, or there may be a general wasting of the cartilages. In addition there is deformity of the articulations, spasm and neuralgia; besides, mental depression, dyspepsia, acidity, rest at night disturbed, affected by changes in the weather.

In the treatment the general health must be improved. All the emunctories of the body regulated. The diet is to be generous, vitalizing, warm clothing and best attention possible.

A general tonic and alterative course, among the former, phosphate of quinine, minerals, acids, cinchona; among the latter, sulphur, iodide of potash, colchicum locally, general warmth.

HÆMATOZOA.

The following entozoa have been found in the human blood:

Filaria Sanguinis Hominis.—A worm of microscopic dimensions found in human blood in sufferers from chyluria.

Distoma Hæmatorum.—An entozoa with a flat elongated body and a cylindrical tail; inhabits the portal vein and the veins of the mesentery, liver, kidneys, bladder and intestines, gives rise to the hæmatura of our Southern intermittent.

Hexathyridium Venarum.—About three lines in length. Is often found in the venous blood of consumptives and in the sputa of patients affected with that disease if streaked with blood.

Fasciola Hepatica.—The fluke is found most frequently in the portal vein and gall-duct; often passed in innumerable quantities by the bowels.

HYDROPHOBIA.

The living germ of rabies is communicated to man by the inoculation of the saliva of a rabid animal. Period of latency or dormancy of the germ varies with the grade of vital force. With strong vital force it may remain quiescent indefinitely, whereas, in a weak and impaired constitution the germ may take on vigorous growth and use up vital force in a few days.

In the dog, there can be little doubt but that the degradation of living matter which gives us the germ rabies, may be due to filth, want of natural grasses and water, over-exhaustion, heat, and probably from other animals. The fact that a dog only perspires by its mouth may have something to do with it, in rendering it more obnoxious to its development. Licking the hand, bites, scratches are the ordinary forms of inoculation. As a latent germ or slightly active one in the human blood, it gives rise to a number of obscure nervous affections, as epilepsy, asthma, neuralgia, hysteria, special conditions of irritation of the brain, chiefly around the pons, spinal cord and great sympathetic.

If the germ becomes active, or, in other words, if hydrophobia is about to appear, there is great nervousness and irritability, a mental condition of profound despair, haggard appearance of countenance. If from an old bite or inoculation, the cicatrix becomes painful, sharp lancing pains radiate along the course of the nerves up the limb, and in a freshly bitten part the same sensations. Slight spasms come on, very light at first, and long intervals between, but they gradually become more violent, increase in length, and the interval between grows less and less with each occurrence. During these attacks the features become livid or purple, eyes protrude from their sockets; thick, viscid, ropy saliva is secreted, which keeps him constantly hawking and spitting; spasmodic action of the muscles of the throat and pharynx and diaphragm, and latterly, of the entire body. During these paroxysms the patient is wild and delirious. In the interval between, nervous impressibility is intense, thus, dread of movement so great that even the moving of a curtain or door, the undulation of water in a glass, will excite a spasm. Still, there is a real dread of fluids. They are more difficult to swallow than solids, as they bring all the rings of the œsophagus into active exercise. Great delirium, violent spasm, exhaustion, death.

It is a disease that is easily recognized by the great mental irritability, by a total absence of fever, by the character of the spasm, very light at first with long intervals, by the fits gradually becoming longer and more violent, with less time between; the face, during paroxysm, livid or purple, eyes protruding,

hawking and spitting thick viscid saliva; while paroxysm is off, conscious.

Treatment.—After a bite ligate above the wound, then resort to free incision into it or apply wet cups over it; encourage free bleeding with fomentations of hot water; then either cauterize the wound freely with caustic potash or wood ashes, or if none of these are handy, chop a number of red onions very fine, and crush or beat into them pulverized muriate of ammonia, and apply for several hours; if a large wound, fresh application every hour, then poultice with lobelia and slippery elm. At once the patient should be placed on small doses of lobelia, and if indications of a spasm, larger doses, just enough to nauseate well, not to vomit. Keep on with it several days. Lobelia has a retrograding action on the germ rabies; it will not cure, but prevents its activity and development. The living germ will only die under a condition of quasi-suspension of the nervous system. This is to be obtained if commenced early, when the patient can swallow freely, by very large doses of fluid extract of sumbul, a strong infusion of sculleap and sesqui-carbonate of ammonia. Administer often; repeat one after the other in as large a dose as the stomach will tolerate, and no let up until a condition resembling general paralysis is induced, with a sleep like coma.

If this condition can be brought about the germ will die. The rate of growth of the germ rabies is determined solely by the debility of the affected person, and there is no way left, no time for anything but cutting off the pabulum by partially suspending nerve force. The power of growth is great, but if this quasi-suspension is induced, there seems to be no nutrient matter for the germ. It must be performed early. None of the remedies are in any way poisonous, so there is no danger from an over dose; and there must be no stopping until the most profound anæsthesia is produced. Never be satisfied with a sensation of pins and needles over the entire body, that feeling must be followed by profound narcotism. Anæsthetics, chloral hydrate, opium, bromide of potass, are no good, neither are the general run of acro-narcotics, as aconite, belladonna.

The passion of rage in any animal, even man, evolves a special living principle, a disease germ; for the bite of an angry man, free from the anæsthetic influence of alcohol, is highly dangerous and often fatal, causing bacterial poisoning, erysipelatous inflammation of cellular tissue, and death.

The principle might be carried further. Are not there living principles in all our emotions, desires, affections, passions, which render them contagious? Have we not special epidemics which are catching, religious excitement, suicidal mania, seasons when special crimes seem to be propagated?

GLANDERS.

A malignant, contagious, germinal disease, due to a degradation of normal living matter of the lining or Schneiderian membrane of the nasal organs of the horse, ass, mule, and the alteration that takes place is into a giant form of *amœba*, precisely analagous to catarrh in the human subject, the only difference being in the size of the germ. In the horse the disease-germ or micro-organism is quite large, whereas, in the catarrh incidental to man it is very small. The giant *amœba* of our domestic animals is most malignant, and in glanders, so called, they form colonies in round scooped-out ulcers, with a red granulation in the centre, the muco-purulent discharge being very abundant, thick, ropy, fœtid and loaded with germs. Glanders and farcy are identical. In the former we have the germ in the nose working inwards to the blood; in the latter it has entered the blood and is growing in the lymphatics. In farcy, with engorgement of the lymphatic system, the blood process of formation is seriously impaired, and we are apt to have hæmorrhage in the cornea and other structures of the eye, giving us what is termed pink eyes.

The predisposing cause of glanders in animals is depressed nervous and physical energy, such as is produced by hard work, overcrowding, isolation, sameness of diet, exposure to air currents, privation, depressed and vitiated states of the atmosphere, endemic conditions, air loaded with germs, abnormal meteorological states, dispersion of germs over large areas, very fatal to man and animals, destroying the red discs of the blood and is death to that fluid; besides, it causes immense hypertrophy of spleen, starchy degeneration of liver and kidneys and general dropsy.

Like all germ diseases, it is propagated by contagion and infection. It is very prevalent in all sections of the country, and it exists to such an alarming extent that it is becoming a serious and growing evil. It makes occasional epidemic attacks under a form named epizooty.

The gathering together of several hundred horses in one stable is not conducive to their health, and when the slightest catarrhal condition is present, likely to be disseminated. It is well known that the disease-germs are not only abundant in the nasal discharge, but that the breath, sweat, urine and other excreta are loaded; and where have we the least sanitary arrangements made for its suppression? In the stalls, blankets, feed boxes, water troughs there is the living contagion. The public drinking troughs are a source of danger to animals, as the germs pass into the water and the glandered horses are allowed to quench their thirst at those valuable conveniences. In the act of drink-

ing by the horse, a certain amount of saliva and nasal discharge always escapes into the trough, so that one glandered horse may infect all that drink subsequently from the same trough; for, although the discharge is heavier than water, and as we would naturally suppose, sink to the bottom, the fact of its being alive and the germ growth increased by water, myriads and millions are grown light enough not only to float in the water, but also to float through the air.

In the treatment of glanders in the horse we use the ozonized catarrh fluid, same as in the human subject. Warm drinks of flaxseed tea with sulphite of soda; food, the grain from a brewery and brewers' yeast. All enlarged lymphatics to be opened and dressed with charcoal and yeast poultices, and a free use of permanganate potass as a wash. Besides the destruction of the germ in nasal cavity and blood, quarantine, thorough ventilation, a liberal use of lime and disinfectants, with a liberal supply of good warm food, avoidance of overwork and all insaniary conditions.

In man it is a malignant and contagious disease, due to the germ from the horse, with same condition of nose and lymphatics. Usually rigors and a fever.

The presence of the disease-germ glanders in the blood, either in the horse or the human subject, gives rise to acute starchy degeneration of the, spleen, liver, kidneys and lymph canals, which speedily produces the white cell disease, dropsy, and death.

Treatment is on general principles. Control fever, give support, douche out the nostrils daily with antiseptics; administer same class of remedies internally, as salicylate of soda, sulphuric acid, sulphite of soda, thrice daily, in alternation with quinia and aromatic sulphuric acid. Pure air, all enlarged lymphatics to be at once opened and dressed with antiseptics.

The Epizooty, the epidemic form of glanders, is due to insaniary states existing in stables, to overcrowding, to a sameness or meagre or insufficient food.

Pink Eye is simply the same disease germ colonizing in the eye instead of the nose or lymphatics.

BITES OF RABID ANIMALS AND VENOMOUS REPTILES.

The poison of venomous reptiles and rabid animals is a living germ which has a strong affinity either to destroy the blood or nervous system. In the former, erysipelatos inflammation is predominant; in the latter, a peculiar train of nervous symptoms, as pain in the wound radiating in the course of the nerves; faintness, rapidity and feebleness of pulse; bilious vomitings, difficulty of breathing, profuse cold sweats, jaundice, convulsions.

All bites of rabid animals are nearly treated alike, a ligature above the wounded part to prevent the germs being carried into the blood or nervous system, incisions, wet cups, hot fomentations to encourage free bleeding, wood ashes or caustic potassa applied freely; then irrigation with vinegar, followed by muriate of ammonia, either as a lotion or in a poultice.

To all bites of venomous insects, as wasps, musquitos, spiders, and poisoning with ivy, sumach and other agents, a saturated solution of muriate of ammonia is sufficient, if kept constantly moist, to neutralize the poison.

In the case of bites by rabid animals producing erysipelatous inflammation, the germs lodge in cellular tissue and blood, involving the nearest lymphatics, and causing abscess, doughy swellings in the body, and death at a remote period.

In cases of this kind free incisions and antiseptic poultices.

In another class of cases the germ of the reptile or snake becomes imbedded in a nerve or its neurilemma, and grows with great rapidity, so prodigious that the germ development may cause death in twenty minutes, the entire nervous system becoming perfectly paralyzed, the cutaneous surface shrunk and withered and as white as snow, constriction of chest, threatened paralysis of the involuntary muscles often taking place a few minutes after the bite. In all such cases there is no time to wait on the action of drugs, and the quickest and safest plan is to procure anæsthesia of the nervous system for ten or twelve hours by the copious drinking of good brandy or whisky until perfectly drunk. It must be given in half pint doses every few minutes to obtain the desired result. It is most extraordinary the quantity necessary to be given in some cases. During the quasi-suspension under whisky there seems to be no pabulum for the germ elaborated, and it dies in the body, the bitten person recovering from his anæsthesia or stupor well.

A still more certain method is to combine liquor potass with the brandy or whisky. The liquor potass completely neutralizes snake poison. It should be given in the brandy in ten, twenty or thirty drop doses sufficiently often. The brandy stimulates, rouses, carries the potash into the blood, and enables it to overtake and neutralize the poison in the blood. The saturation of the system with the alkali until the secretions are alkaline is the point to be aimed at. The permanganate of potassa has the same power, but owes its property to the potash alone.

POISON OF SUBJECTS.

In all deviations from health a change takes place in the living matter of man and animals. This change is simply a degradation of healthy matter into disease germs, as bacteria, amœba, vibrios, oidium albicans, tubercle cancer and syphilitic

and other germs. When the soul element leaves or life ceases these germs become active; their rate of growth is incomprehensible, and in a short time they reduce our bodies to simple materials, to their original constituents, water, carbonic acid, ammonia and earth. During this transition of change or death a great variety of complex or dual or quadruple germs are liable to be formed, which, if introduced into the living blood of man, have their minute property of vitality augmented, and will produce in the living organism the same state of decomposition as they were carrying out in the death. The olfactory nerve recognizes them as gaseous emanations, or faint, sickly, nauseous odors, but in those an experienced and educated physician recognizes the odor of the bacteria, vibrios, *oidium albicans*, etc., etc., living poisons, micro-organisms which find their way into the bodies of the living by the eyes, nose, mouth, skin, and if they enter the blood they will grow, but if the dissector is healthy they may go in and pass out without any alteration of their organic properties. Their passage by the bowels is the cause of the gastro-intestinal irritation so common among medical students.

Dissection Wounds.—The more highly organized the flesh or individual, the more rapid is a change into germ elements. We see this in all animal matter. How quickly the tender loin changes compared to other parts! All human subjects are but a mass of germ matter, being more or less virulent, according to the disease or species of germs under which the individual died. Injecting the subject with chloride of zinc, or arseniate of soda, or oil of cloves does not destroy the germs; they simply arrest their activity. There is no known antiseptic, unless it is the salicylate of soda, that can destroy the germ of small-pox, anthrax or Asiatic cholera in the dead—nothing but cremation. The bacteria of erysipelas or bacteria vibrio of puerperal fever is also tenacious of life; so is the *oidium albicans* of spotted fever, diphtheria and malignant scarlet fever, as well as the germ-syphilis and cancer.

The worst consequences of wounds, scratches or abrasions being inoculated with a germinal poison from a subject are, inflammation of veins, the blood in which becomes a living mass of bacteria; diffuse inflammation of skin, cellular tissue, with engorgement of the lymphatics; together with languor, lassitude, debility, rigors, vomiting, pulse frequent and sharp, tongue heavily coated and dry, great restlessness. In other cases the vital forces are better; a pustule may form on cut or abrasion, excruciating pain running to shoulder of affected side, with fullness in axilla and neck, and doughy swelling on one side of the body, which soon assumes an erysipelatous redness. The symptoms become aggravated, breathing difficult, pulse quicker

and quicker, the tongue dry, brown, tremulous; great mental distress, countenance haggard, delirium, skin yellow, soon ushered in with death. In other cases, the patient dies early, either before or during the precursory fever.

Treatment.—In all cases attend to the wound, which excise or cause it to bleed freely, cauterize with caustic potassa, neutralize with vinegar, or lotions of muriate of ammonia may be sufficient. If veins are red, cordy and extremely painful, apply a row of leeches along them and then the muriate of ammonia solution during the day and alkaline poultices at night, with abundance of opium to keep down pain.

Administer an emetic of lobelia, open the bowels freely with cholagogue remedies, and alcoholic vapor-bath and general treatment for fever, as aconite, veratrum viride, etc., nourishing diet, irritation to be allayed; and now the life of the patient depends upon the persistent, steady administration of antiseptics, such as are laid down under the head of typhoid fever.

Nurses, attendants and washerwoman should be cautioned, indeed, all clothes and all about the patient should be disinfected.

HÆMORRHAGIC DIATHESIS.

This is a peculiar constitutional defect and consists of a want of fibrin in the blood, which gives that fluid a want of cohesion, so that the slightest wound bleeds freely and an oozing is liable to take place from mucous membranes on very slight irritation, hence, hæmorrhages from nose, bronchi, stomach, kidneys, uterus. This fluid condition of the blood, irrespective of any disease, seems to depend upon some constitutional defect; patients of light hair, white skin and a highly sanguine temperament are its victims.

It may be either hereditary or acquired. It may be suspected if there are hæmorrhages or ecchymosis with debility.

The treatment to overcome it is good diet, mineral acids, cinchona, etc., and all surgical operations on this class of subjects must be very carefully guarded.

FATTY AND AMYLOID DEGENERATION.

Chronic disease, intemperance, residence in a tropical climate, malaria and certain drugs—everything that retards the decarbonizing function of the liver, may give rise to the presence of oil globules in almost any tissue of the body; on muscular structure, if unused or overworked. The muscular fibres of the uterus are often usurped by it, even the coats of arteries. In all persons who use alcohol in any form fatty tissue takes the place of healthy structure. The causes of fatty degeneration are apparent.

Amyloid or starchy degeneration is very prevalent, but its

causes are much more obscure than the former. It has been found in the liver, kidneys, spleen, pancreas and other glands and structures, its properties being analogous to real vegetable starch. Whatever the particular substance may be, the fact exists that we have a remarkable constitutional disease which invades several organs at the same time, and renders them incapable of performing their functions.

Patients affected with amyloid degeneration gradually assume a cachectic broken-down appearance, lose flesh and strength, dropsy often supervenes, urine becomes albuminous if the kidneys are affected.

When the liver, spleen or kidneys are affected, it may be difficult during life to say which is which, although the use or prior use of alcohol will invariably decide in favor of fat; whereas a tubercular cachexia will naturally lead us to starchy.

The point may not be determined till after death, when they are easily distinguished. Both may cause atrophy as well as enlargement of glands.

CALCAREOUS OR MINERAL DEGENERATION.

Every texture of the body, every gland or organ, is liable to earthy degeneration.

The causes are somewhat obscure, but it seems to be closely blended with a nervous temperament, tubercular and cancerous diathesis, as we find this deposit most generally among that class of persons.

It is important to distinguish between ossification and calcification. A deposit of bony matter may take place and be even covered with periosteum, and become either a spongy or hard cancellated body; whereas, when living or calcareous degeneration takes place, it gives rise to calcification or petrification.

The valves of the heart, the coats of arteries, sinuses of the brain are often found brittle from that cause. In some cases earthy matter is found in the cellular tissue, liver, kidneys, bladder, brain, and is classified under the head of a phosphatic diathesis, which is common in the nervous temperament.—(*See Phosphatic Diathesis.*)

MERCURIAL POISONING.

The use of mercury in the arts leads to a vast amount of disease. Makers of barometers, thermometers, looking-glasses are thoroughly saturated with mercury. The amalgam used by dentists contains a large per cent. of pure quicksilver, which breeds the disease in those who have their cavities filled. The finer the preparation or trituration, the more likely is it to do its deadly work. There is less danger of absorption from a blue pill, followed by a saline purge, than from the infinitesimal

trituration of the empiric mercury that may find its way into the human organism by the skin, breath, salivary glands of the mouth and stomach. Its use, as a medicine, is now very limited. The old doctors have found out its destructive action on the blood and use it little, but in the sugar pellets and powders it is the leading drug. It enters the blood, produces impoverishment of that fluid by the direct action of the metal on the red globules; then it causes chronic inflammation of the liver, mercurial aphthæ, stomatitis and destruction of mucous membrane, especially of the throat, and causes inflammation, thickening and necrosis of bones. It stamps its victims with a peculiar metallic color, gives a peculiar fœtor to the breath, and is destructive to all the vital organs of the body. It may destroy the germ syphilis, but it will be at the expense of creating a mercurial cachexia and a living barometer of its victims. This is unnecessary when we have very superior drugs to do the work.

So long as no organic change has taken place in the liver or bones from the action of mercury, iodide of potass will unite with it and cause its free elimination; so the treatment of mercurial poison resolves itself into the one drug, with sulphuret of potassium baths, and tonics with good diet.

PHOSPHORUS DISEASE.

While we strongly advocate the use of a diet containing more brain and bone elements, as oatmeal porridge and cream, boiled white fish, corn meal without baking powders, and flour not deprived of its phosphates, as being more conducive to health and longevity, and to an increase of intellectual power,—that we believe, in those natural forms, that phosphorus does give thought and depth to mental vigor, still, we must say, in all candor, that the remedy phosphorus, as isolated, is a deadly poison to a large number of our people, and ignorant, so-called doctors, prescribe it indiscriminately. No man or woman who uses either tobacco or alcohol should ever take phosphorus in any form, for if they do, it will irritate their stomachs and cause acute or chronic gastritis. It tends, also, to cause fatty degeneration of the substance of the heart, liver, kidneys, spleen and uterus.

The operatives in phosphorus, in match factories, rat poisons, etc., inhale its fumes, and its first action is to cause progressive anæmia, with loss of hair and great debility. Its second action is to produce necrosis of the bones, a dropping out of the teeth and breaking down of the jaw. Now there can be little doubt that the excess of phosphates in the blood in those cases destroys the bone lymph, and the death of the jaw and other bones is due simply to starvation, to the destruction of the bone elements.

This may be due to the direct action of the metal on the blood and also to impairment of sanguinification through disordered innervation.

The only treatment is to change the occupation of the patient, sea air, a very generous diet and vegetable tonics. There is no known remedy to antidote its effects. We seriously caution our readers to be on their guard against this deadly and destructive drug.

BRASS FOUNDERS' DISEASE.

Operatives in copper, zinc and tin are liable to several morbid conditions from the inhalation and absorption of the fumes of the metals. Most generally the metal has an affinity for the fine delicate nerves of the duodenum and brain, like lead and bismuth, but workers in brass have a regular cachexia produced by the metal, a feeling of languor and depression, or peculiar sallow hue of skin, with anæmia, and febrile attacks like intermittent fever.

The attacks, however, do not come on with regularity. In the stage of chill there is usually constriction or tightness about the chest, and in the last stage, which is followed by a profuse sweat, the linen is usually stained with the eliminated metal and it has a brassy odor.

Poisoning by brass and tin is much more common than is generally supposed. Many of the indescribable derangements of the digestive tract are due to minute portions of those metals finding their way there from various culinary articles, as kettles, pots, &c., and also from the cocks and spigots of soda fountains, mineral-water bottles, and ordinary water-pipes. An oxalate of tin is to be found in every article preserved in tin cans, as tomatoes, peas, asparagus, which is exceedingly toxic and capable of producing a well-marked train of symptoms, identical in their character with brass poisoning. The preservation and cooking of edibles in tin and brass vessels is a prolific source of disease, and measures of some kind should be adopted to arrest the spread of this latent form of poisoning.

Treatment.—Workmen should avoid the fumes of zinc and brass; iodide potass unites with them freely and causes their elimination. In some cases lobelia emetics are of great efficacy, followed with cinchona and mineral acids; bowels to be regulated and alkaline baths used daily.

DISEASES OF THE NERVOUS SYSTEM.

VERTIGO.

Vertigo, a swimming in the head; *muscæ volitantes*, specks or spots before the eyes; and *tinnitus aurium*, noises or ringing in the ears, are respectively due to exhaustion of the cerebral pulp associated either with congestion or anæmia. Vertigo, a transitory state of giddiness, a whirling or falling, surrounding objects appearing to be in motion, is often followed by headache, nausea. It is a symptom of a devitalized state of the brain, weakness or general disease of the blood, or it may be due to a poison, as opium or tobacco, or alcohol; or of some auditory, cardiac, gastric, intestinal or hepatic affection. Any want of equilibrium will give rise to it. It is often a precursor of apoplexy and paralysis. In aged persons it is often due to disease of the cerebral arteries. Vertigo is the most common of all morbid states of the brain, and its great frequency must be accounted for irrespective of disease or poisons.

It has long been known that the nervo-vital fluid within the skull forms a bed-plate upon which the brain rests; that this watery fluid within the ventricles finds entry and exit from the brain into the spinal column, so that it comes and goes from spine to brain according as the pressure of blood is less or more.

The mechanism by which the human frame is adapted to go upright is unnecessary to discuss. It will not do to say that it was the size of his brain and ambition that gave him this nervous energy to brace up or take the trouble to be upright. True, the increased size of man's brain and its peculiar richness in grey matter necessitates an increased supply of rich blood. The erect posture placed the brain aloft, so that blood supply is difficult, but this is guarded against and regulated by the cerebro-spinal fluid. Three ounces of fluid is a small quantity; still, the circulation of blood in the cranium is subject to small changes. In extravasation in apoplexy the amount of blood seldom exceeds three ounces; there is no room for more, for that corresponds with the amount of cerebro-spinal fluid.

In the recumbent posture, the entire spinal fluid is within the skull, which slows the heart ten to fourteen beats per minute. When the body is raised and the venous blood flows away readily from the brain, the cerebro-spinal fluid may outstrip the arterial

blood in the race to supply its place, and thus the ventricles of the brain may fill up with water more quickly than its substance with blood, and so the brain blanches and the person feels giddy. In the anaemia of exhaustion the ventricles have an increased capacity, and many persons, with feeble circulation, experience giddiness, a sense of insecurity. Besides these there are numerous other conditions that render vertigo more common than the other two symptoms.

The immense size of the human brain, and its extreme richness in grey matter, (weighing from forty-five to sixty-five ounces,) necessitates a great demand for phosphates, which, if not very abundant in human food, gives rise to a condition of starved brain, of which vertigo is the only symptom. This is common in brain-workers who neglect a phosphatic diet.

HEADACHE.

Is another symptom of an enfeebled brain, and is common among those who suffer the wear and tear of highly civilized life.

There are several varieties:

Organic Headache, due to disease of the brain or its membranes, accompanied with vertigo, *muscae volitantes*, *tinnitus aurium*, vomiting, convulsions; character of pain will depend on whether it be the membranes or brain substance that is affected; if membranes, sharp or lancinating; if substance, dull. When due to inflammation, pain aggravated by noise, light, heat, motion. It may be due to the invasion of syphilitic or cancer or other germs or parasites.

Congestive Headache is due to inherent weakness in brain substance and a determination of blood. There are symptoms of plethora, vertigo, beating in ears, caused by over-stimulation, or it might arise from a sudden suppression of the catamenia.

Bilious Headache, due to derangement of the stomach, bowels, liver. Tongue coated, breath foul, flatulence, low spirits, nausea; liver very torpid, constipation, stools clay-colored; passes off with removal of cause.

Nervous Headache is due to debility, exhaustion, poor blood, hæmorrhage, over-lactation. Irritation reflected, it may assume an intermittent type. When hysterical women suffer from this form it is usually confined to a single spot, and resembles the driving of a nail into the part, and is known as the *clavus hystericus*.

In the treatment of headache, general principles must be observed. Bowels regulated, skin stimulated, rest inculcated and the cause removed. In the *organic* form, *hyosciamus* must be given same as in acute inflammation of the brain; in the *congestive*, purgatives, warm mustard food, baths, removal of cause;

in the *nervous*, nutrition, tonics, removal of cause; in *bilious*, cholagogues.

In all cases the pain must be relieved, because brain-pain is out of all proportion to that of any other form. For this purpose the following remedies have been found of great utility in all forms, (except opium, chloral hydrate and bromide of potass as deleterious drugs):

Citrate of caffeine, in all forms of sick headache, is of great efficacy. The dose is small—two to three grains, repeated every half hour until the headache disappears. There is no failure—it is a powerful remedy. Given just adapted to the needs of the sufferer, it quickly and perfectly removes the pain in the head and nausea. The use of caffeine in headache is one of the most important of special remedies. The relief it gives is solid and speedy. It deserves to rank high. It is often preferable to guarana, being more sure and speedy and more congenial to the stomach. Give it either before or during an attack.

Guarana has the property of relieving all forms of sick headache, but should be given when the headache is approaching or even during its attack, and repeated as indicated.

SLEEPLESSNESS.

Is often an early and premonitory symptom of disease of the brain. It may be caused by passion, mental anxiety, dyspepsia, imperfect action of liver, constipation, disease of heart, pregnancy. It is often an aggravating symptom of chronic inflammation of the brain, insanity, mania, chronic alcoholism.

In its treatment, the removal of cause, mental or physical, regulation of secretions, good digestible food, moderate exercise, avoidance of all stimulants, abundance of fresh air.

The medical treatment involves the use of such drugs as hyosciamus, camphor, lupulin, and an avoidance, if possible, of opium, chloral, or bromide of potass, or hypodermic injections. The pulverized extract of hyosciamus with opium has a wonderful action in promoting sleep and giving rest to the brain when exhausted by worry, and followed during the day with the ozonised glycerite of kepheline.

COMA.

Deep or sound sleep, or a state of stupor with loss of consciousness from which the patient is roused with difficulty. In coma (heavy sleep) there is not only a loss of perception and volition, but usually stertorous breathing, flaccid limbs, dilated pupils; patient cannot be roused.

There are several forms or varieties:

Alcoholic Coma.—Alcohol is a poison which affects especially the brain and liver. In large doses it may destroy life

immediately, so that insensibility is often complete. No stertor, pulse frequent, pupils contracted or more often dilated. Temperature lowered two or three degrees; odor of breath.

Opium Coma.—Patient can at first be roused, breathing slow or stertorous, pulse weak and soft, pupils contracted to a pin's point, countenance livid, clammy sweat, temperature lowered.

Uræmic Coma.—Patient can generally be roused, except near termination. Uriniferous odor of skin and breath, respiration not stertorous, pulse variable, temperature lowered.

Epileptic Coma.—Temporary, and insensibility is rarely absolute except during the fit. Patient can be roused. Respiration natural or suspended. Pulse frequent and full.

Apoplectic Coma.—That due to extravasation of blood or injury. Patient rouses with difficulty or not at all. Respiration is stertorous, unless placed on side, often irregular. Pulse full, face flushed or pale, temperature up, hemiplegia can be made out, pupils dilated or in lesion of pons contracted, often squinting or ptosis.

There are other forms, chiefly due to the inhalation of noxious gases, as coal gas, carbonic acid gas, etc., and non-oxygenation or non-aeration of blood, as in pneumonia, hanging, drowning, etc.; and the coma of nitrous oxide, ether, chloroform.

The treatment will have to be varied according to the cause; the history of case of great importance as a guide. The greatest care and good judgment is often necessary to form a correct diagnosis.

CEREBRAL INFLAMMATION.

No class of diseases are so interesting as the various affections of the brain. The fact that the brain wears out sooner than it used to do under what is termed civilization, and that its health and vigor, and even the production of disease in it, depends on the development and healthy condition of the great sympathetic, are highly suggestive. In women, children and all races outside of the Caucasian, the absence to a great extent of cerebral disease can only be accounted for by the rudimentary condition of the sympathetic. The effects of isolation and sameness, or monotony in causing contraction of its convolutions, thus causing epilepsy and insanity, and the action of blood poisons, are also of great moment in reducing the angle of longevity of our race. The study of brain diseases is not sufficiently advanced to enable us to elucidate all the points clearly; neither are we yet able to distinguish correctly between inflammation of the substance of the brain and that of its membranes. Indeed, they cannot be really separated, although it has been attempted.

Acute Inflammation of the Brain.—A partial death of the substance of the brain may depend upon two general conditions. It may be due to causes within the body, such as depressing emotions, desires, affections, passions, the struggle for existence or excessive mental strain, religious excitement, blood poisons, or it may be due to blows, falls, shocks, concussion of the brain or fracture of the skull. In the former case it is said to be idiopathic; in the latter, traumatic. As brain substance is intrinsically the most valuable tissue in the body, it is the most difficult to depress and the hardest to establish a renewal of life in; so that in the idiopathic form, the stage of shock or incubation is often for a number of years, and in the traumatic form, quite a good while; even in bad fracture, with compression, a week or more often elapses before active symptoms of inflammation set in.

After the brain has received the shock, there is then an intervening period before the rigor and active inflammation, and during that time the patient is irritable, restless, peevish, sleepless, complains of heats and colds, burning in the skin, secretions are arrested, great lassitude, peculiar idiosyncrasies, great disturbance of the mental faculties, and there is a characteristic pain in the head, usually frontal, aggravated by noise, light, heat and motion. There is also intolerance of light, slow pulse, want of appetite, tongue dry with white and brown coat, skin white.

These premonitory symptoms become more intense daily, when, if the inflammation is about to take place, the patient is seized with the most violent rigors and a high fever; pulse hard and frequent, strong pulsations of the carotid and temporal arteries, headache intolerable and throbbing, eyes suffused, face congested, tongue dry and brown, bowels obstinately constipated, stomach rejects everything, secretion and excretion arrested; besides, there is apt to be violent delirium, coma, convulsions, paralysis, pupils contracted to a pin's point, articulation difficult or indistinct. If not relieved at this point, then pupils become dilated, the eyelids drop, (ptosis or squinting) or paralysis of muscles of eyelids, frequent twitching of muscles, ghastly countenance, sordes on gums and teeth, cold sweats, relaxation of sphincters, convulsive paroxysms, paralysis, profound coma, which usually soon ends in death.

In some cases, the first symptom of an attack is convulsions, preceded by very slight premonitory symptoms, that are often unnoticed. Convulsions, long and severe, may be followed by coma, which is soon fatal; or it may recur frequently at short intervals, and pass into coma at the end of twenty-four hours. When nausea and vomiting are the earliest symptoms, inflammation has its origination in the cerebral pulp. When attacks begin with convulsions, the affection has started from the arach-

noid or pia mater; or, to be more explicit, if the inflammation involves the cortical substance and membranes, early derangement of the intellectual faculties, irritability, constant agitation; if the medullary substance, chills, headache, convulsions, great lassitude.

The medullary substance of the brain is merely the passive servant of the cineritious substance, the conductor of its demands to the muscles. The grey presides over intellect; the white, over movements.

Rigors taking place during the active inflammatory stage, with squinting or dropping of the eyelids, palsy, contraction of one pupil and dilatation of the other, indicate extravasation of blood into the brain and an unfavorable termination. Acute inflammation of the brain may terminate in any of the ordinary results of inflammation, but its common termination is effusion of blood or extravasation of blood on or in its substance or recovery by the slow process of chronic inflammation. The hæmorrhage is termed red ramollissement.

In the recognition of acute inflammation of the brain, its history, all the symptoms prior to and after rigor, the fever, intellectual condition, eyes, face, arrested secretions, and especially the headache, must be noted. True, there may exist complicated phenomena during life, according to what extent the various structures are involved, but the leading symptoms are a good land-mark.

Treatment.—At the earliest possible moment energetic treatment should be resorted to, to aid a renewal of life in the brain. For this purpose the patient should be placed in the recumbent posture in bed, head and shoulders well elevated, and in an apartment away from noise, heat, and pretty well darkened; head to be shaved and towels kept constantly wet with hot water to be wrapped around it. The back and sides of the neck, down the back and over the shoulders should be dry cupped; a roller, eight yards long and three inches wide, saturated with mustard of the consistency of cream, should be applied from the great toes to the knees, wet occasionally with fresh mustard and reapplied. Two to three drops of tincture veratrum viride should be given every fifteen or thirty minutes until pulse is seventy, and then continued at longer intervals of one, two or three hours, as indicated. Free purgation must be resorted to. For this purpose, twenty grains of compound powder of jalap and senna, with one drop of croton oil rubbed into it, should be given, and the same dose repeated every one or two hours, or often enough to keep the bowels open twice or three times a day—the croton oil to be left out after the third dose. Another important indication is sleep. It is very likely the patient has not slept for a long time. Then take twenty grains of the

solid English extract of hyosciamus with three grains of pulverized opium, and rub both up in a mortar until a fine powder is procured, then add a drachm of sugar of milk; mix well and divide into twenty powders, and give one every hour until the patient sleeps. If, after three or four are administered, there is no sleep, double the dose for three times, and if that fails, increase still, but very carefully, never to exceed five to one dose. If sleep and a pulse of seventy can be reached, by further good management, the patient is safe. On no account resort to chloral hydrate, opium, hypodermic injections, as they are totally contra-indicated. If arterial sedation and sleep can be procured, still persevere for some time with the above. Give little or no diet for several weeks; barley or cracker water, oatmeal gruel and the like will suffice.

As the patient improves, other remedies to aid the salutary effort of nature may be tried, as bromide of potass, aconite, belladonna, lobelia.

The bromide does good work given in the following manner:

Camphor water, four ounces; bromide of potass, one ounce; bromide of ammonium, two drachms; bicarbonate potassa, three drachms.—Mix. Dose, one teaspoonful thrice daily.

Just as the fever subsides is the best time to commence with the aconite and belladonna. A teaspoonful of the tincture of each in half a tumblerful of water; a teaspoonful every one or two hours.

Belladonna, like bromide of potassa, has an anæsthetic action upon the cortical substance, the quadrigemina tubercula and the membranes which aid in the removal of congestion. It will also be found advantageous, in many cases, to alternate them with lobelia in full form, as often as every two or three hours. Pills of pulverized green lobelia are slower in absorption, and less likely to induce nausea. Lobelia is a depressant and sedative, has a decided influence in all cerebral engorgements; it diminishes respiration, heat, pulse, and abates inflammation. With these and other means that the peculiarities of the case will suggest, we try to aid nature in controlling inflammation of this vital organ. The general principles of treatment of fever must be carried out, as to bathing, recumbent posture, heat to feet, great quietness, etc., and run the case into one of chronic inflammation in which our remedies are more numerous, and embrace alteratives and tonics, rest, change of air and a very cautious use of food.

ACUTE SIMPLE MENINGITIS.

Inflammation of the membranes of the brain may arise in children from a very trifling cause, as a blow or fall on the head, or extension of disease from the ear or nose, or by exposure

to the sun. The fact that children have only one table in the bones of the skull, no middle or diploetic structure to resist shocks, renders them, up to puberty, very susceptible to irritation of the membranes from falls or concussions. Independent of violence, it may be caused by rheumatism, gout, syphilis, tuberculæ.

Symptoms.—The ordinary symptoms of languor, mental irritability, sleeplessness, headache aggravated by noise, light, heat, motion, intolerance of light, rigors and a fever; pain in the head becomes aggravated, irritability increases, delirium, frequent flushings of the face, followed by pallor, rapid pulse, muscular twitchings, prostration, coma.

In distinguishing its locality in children observe carefully the following:

Membranes covering the convexity of the brain.—In the child, first a rigor, then a convulsion, fever, skin hot, dry; pulse hard and rapid, vomiting, bowels constipated, intense headache, aggravated by movement, light, etc., face alternately flushed and pallid, eyes injected and staring, noisy and violent delirium sets in early, great restlessness, muscular twitching, squinting; after three or four days a remission; the pulse fags, tongue becomes heavily coated and dry, pupils sluggish, dilated; the delirium passes into coma, and in a few days more intense prostration. If treatment be successful, improvement is very gradual but progressive.

Membranes confined to base of brain.—Convulsions at commencement, fever, contracted pupils, frequent pulse, clenching of teeth and retraction of head, coma. In other cases, pain in temples, vomiting, constipation, wry neck, loss of appetite, a desire for repose; after a few days, vacant look, dejection, intelligence clear, pulse and skin natural. Headache unrelieved by remedies, coma, death.

Inflammation of dura mater.—Often the result of violence, of disease of the cranial bones, chronic affections of the ears and nose in children, regarded as trifling, may end fatally by an extension of morbid action to dura mater.

Treatment.—In the treatment of this affection in children, it must ever be borne in mind that the law of reflex impressibility is strong in those born of highly civilized parents, so that the active measures used in adult cases must be laid aside when we have a delicate, impressible child to deal with. We want a quiet room, free from noise and heat, and light excluded; no cradle; the hair on the head should be cut close and cloths wet with either of the following applied:

Liquor acetate ammonia, one ounce; alcohol, two ounces; camphor water, eight ounces.—Mix. Or, camphor water, ten ounces; muriate of ammonia, one ounce; nitrate of potassa,

half an ounce; chloride of sodium, half an ounce.—Mix. Strength varied to age.

To the feet, dry mustard in socks. Bowels opened gently with compound liquorice powder or one or two grains of leptandra rubbed up in pulverized liquorice or cascara. To control the circulation, tinctures of aconite and belladonna should be given in a tea of asclepias, and sleep procured with suitable doses of the bromide of potass, as under inflammation in adults, and if not powerful enough, give the hyosciamus, but in smaller doses. No cupping, blisters, or other counter-irritants on account of the reflex impressibility. In case of wandering pains, bryonia is often of great value. As soon as the fever is controlled, iodide of potass is of great utility, otherwise it must be treated according to the cause, taking the greatest care to procure a large amount of sleep, if possible ten or twelve hours out of the twenty-four. The diet here must be more generous, milk and lime-water, and beef tea. Convalescence established upon cinchona and aromatic sulphuric acid, ozone-water, more nutritious food and change of air.

TUBERCULAR MENINGITIS.

An acute form of inflammation of the brain and its membranes, with effusion of tubercle from the blood in and on the membranes and superficial surface of the brain proper. Common among tubercular children under two years of age, and seldom met with over that age.

The predisposing cause is tuberculæ. This may be an hereditary condition in the child, or the child may be entirely free from tuberculæ at birth but acquire that cachexia by bad food, insanitary conditions, drugging with soothing cordials, retarded dentition, hence irritation of the gums, stomach, bowels, acidity, cholera infantum, etc., which irritation is transmitted to the seat of reflex action; the centres of life are depressed, and in consequence normal living matter is changed into the living germ tuberculæ.

Cradle-rocking, blows, slaps, falls, jars, shocks are simply exciting causes. City life and solar heat act as powerful depressants, and in some cases the irritation of dentition, cholera infantum, burns, etc., are sufficient in themselves to cause tuberculæ and give rise to the inflammation.

It usually comes on slowly and insidiously, marked by debility and whiteness of skin, mal-nutrition, loss of flesh and other signs of a tubercular diathesis; short dry cough, great peevishness, restlessness, irritability, attacks of headache aggravated by movement, light, noise; giddiness, skin often hot and cold, pale or flushed, appetite capricious, tongue furred and breath offensive; sickness and constipation, child drowsy, yet restless;

rubs head with hand, rolls head in sleep with eyes partially open; wakes in alarm and screams, and other warnings of cerebral congestion. These symptoms may last for weeks; if they occur in early summer, before the hot weather sets in, they may last the entire season; if late in the fall, they will disappear on the approach of cool weather, or if the patient have proper treatment applied, it may disappear at any time.

But suppose the case progresses onwards, all the above symptoms become aggravated and the child lies very quiet, its countenance expressive of anxiety and alternately flushed and pale, the eyes listless, eyebrows knit, pupils contracted, and is greatly annoyed with light and noise; retching, bowels variable. If old enough, will complain of head; often delirium. Fever high, pulse, 180, temperature, 107°. After a few days the pulse becomes irregular and diminishes, although the slightest exertion will cause its increase. Stupor and heaviness may come on, squinting, patient lies on back, head and heels thrown back, insensible, probably picking his nose and lips with tremulous fingers, convulsions, paralysis, urine and feces passed involuntarily.

If there is no effort at recovery, the drowsiness passes into profound coma, from which it is impossible to rouse the child. Pupils are dilated and insensible, pulse becomes very feeble and frequent, extremities become cold, a clammy sweat breaks out over the entire body. Paralysis and convulsions follow, which soon end the scene. If the case is complicated with cholera infantum, these symptoms become modified to a greater or less degree by that condition.

As to its duration little can be said. Some children will succumb in two or three weeks; others, again, will struggle on the entire summer and finally terminate in hydrocephalus, from which they will recover in a few months.

The growth of tubercle on membranes or brain, carefully scraped off after death, seldom amounts to from three to five ounces. There is always a great quantity of fluid in ventricles and frequently softening of brain substance.

Treatment.—It is doubtful if any disease requires so much care and nice discrimination in management as this. The little patient is intensely tubercular, consequently no depleting plan of treatment is at all admissible. The child should be kept away from noise, light, heat, and not subjected to any movement. It should be bathed twice daily, followed by inunction of warm olive oil into the entire body; the hair cut, and cloths always wet with camphor water, ten ounces; liquor ammonia acetatis, one ounce and a half; alcohol, two ounces.—Mix. Applied to the head. Feet encased in stockings with a handful of dry mustard in each. The bowels to be regulated either with compound liquorice powder or neutralizing mixture with leptandra. The

diet should be mother's milk or milk and lime-water, or juice of raw beef extracted, with water acidulated with muriatic acid.

Tincture of aconite and sweet spirits of nitre should be given to control fever. Every source of irritation should, if possible, be removed. Scarify the gums if teeth find it difficult to penetrate. If there is cholera infantum, give the proper remedies; if great depression of vital powers, stimulants. In all cases the best results follow the use of the following:

Camphor-water, four ounces; bromide of potassa, one ounce; bromide of ammonia, two drachms; bicarbonate potassa, three drachms; tincture calabar bean, half an ounce.—Mix. Dose, from half to a teaspoonful every three hours.

There are two points just here that are very difficult to manage, viz: to build up vital force and destroy the germ tubercle in the blood. We might very cautiously try one to three grains of hypophosphite of potash in a little juice of meat; or from one to five drops of tincture of iodine in sweet milk; or from one to three of iodide of potassa in sweetened water—either remedy thrice daily. Other remedies of intrinsic value are worthy of a trial, as hypophosphite of lime or soda, or the glycerite of ozone, ozone-water; and just as soon as the pain in the head is relieved, administer the compound ozonized extract of saxifraga with all food-pepsin, as a digestive agent, because it is highly antiseptic. Sea air, good, nutritious food, pure milk.

CHRONIC INFLAMMATION OF THE BRAIN.

Is a condition in which we have a low grade of irritation. It is apt to follow an acute attack, but more frequently it is an independent primary disorder.

Its causes are very various: shocks, jars, concussions, blows, falls, railroad traveling, action of the sun, mental strain, worry, struggle for existence, study, depressing passions, as grief, sexual excesses, whisky, tea, coffee, tobacco, quinine, opium, chloral and other drugs; besides, the blood poisons, as rheumatism, gout, syphilis, tuberculae, may, with numerous other conditions, be enumerated as causes. The vices or defects of civilization operate disastrously upon the brain as well as insanitary states and diet.

Its symptoms are much diversified: pain in the head, aggravated by noise, light, heat, motion, with irritability, restlessness, sleeplessness, with heats and colds, with mental depression, disturbance or idiosyncrasy, pallor or whiteness of the skin, anxious expression of countenance, arrested secretions. There is often vertigo, specks or spots before the eyes, ringing or noises in the ears, unsteadiness of gait, hesitation in speech, stammering, stiffness of muscles, loss of appetite, irregularity of pulse, delusions; subsequently symptoms become more marked; memory

fails, senses become impaired, paralysis, general breaking down of health. Its duration is very indefinite and it has a marked resemblance to insanity, once fairly established.

In the treatment we must insist upon rest, freedom from care and worry, and an avoidance of all the causes, such as jars, mental work, sexual indulgence, the use of tea, coffee, tobacco, alcohol, opium. The secretions should be stimulated, bowels moved twice daily with mild but efficient remedies, as cascara, neutralizing mixture, daily tepid bathing, followed with the shower-bath; hair short, head cool, feet warm. Bitter tonics to promote an appetite and ameliorate the more prominent symptoms. Sleep should be procured, and, if possible, prolonged to ten or twelve hours in the twenty-four, by the repeated and persistent use of hyosciamus, thus:

Solid extract hyosciamus, English, thirty grains; powdered opium, five grains; powdered liquorice, sixty grains.—Mix. Make twenty powders. At least three or more daily, beginning in the afternoon and continuing on one or two hours apart until profound sleep is induced. Three times per week two small fly blisters, size of an ordinary visiting card, should be applied below nape of neck, top of each shoulder blade, for six hours at a time; or the irritating plaster or tartarized antimony in basilicon ointment. The idea being, as our people are affected with tubercule to the extent of seventy-five per cent., and syphilis to the degree of fifty per cent. of our entire population, to attract or draw those two germs from feeding on the brain. There can be little doubt but that tubercule and syphilis are at the source of at least seventy-five per cent. of all cases of chronic inflammation of the brain and insanity. An invaluable remedy here is the bromine, as already laid down. But the best plan is, to keep the patient upon a general alterative course with bitter tonics until all vestige of inflammation ceases, such as compound syrup phytolacca ozonized, or saxifraga glycerite of ozone, and when pain has ceased and natural repose is obtained, then such remedies as ozone-water, preparations of cinchona, compound hypophosphites of lime; soda should be given in small doses.

The diet should consist, as much as possible, of the chemical elements of the brain, as oatmeal, boiled fish, rare beef-steak, etc. Change of air of utility. *Other remedies sometimes used with advantage.*

After the pain in the head is relieved, and the patient sleeping for ten or twelve hours every night, appetite returning, then the glycerite of ozone or kephaline should be administered persistently. Those two preparations promptly relieve the prominent symptoms, as the dizziness, mental depression, loss of memory and impaired intellectual faculties. They invigorate

rapidly and remove that feeling of nerve tire or exhaustion which is so distressing.

Induration of the Brain.—Effusion of lymph—one of the effects of chronic inflammation. The indurated portion of small extent presents the appearance of wax or white of egg boiled hard.

The symptoms are often obscure, but it causes loss of memory, confusion of thought, derangement of mental powers, loss of appetite, desires, affections, passions and paralysis.

Abscess of the Brain—May be the result of the induration or some injury or disease of the ear and temporal bone. It may be *acute*, and severe cerebritis may be present, pain in the head, vomiting, fever, delirium and coma; or *chronic*, with insidious headache, dullness of intellect, sometimes hemiplegia, which comes on gradually; it may end in convulsions and death, abscess bursting into ventricles of brain.

The treatment is general alteratives and iodide of potassa.

Softening of the Brain, Red and White Ramollissement; the word *ramollir* meaning to make soft. During acute inflammation an extravasation of blood taking place in or on the brain is called red ramollissement, and if it amounts to three or four ounces is usually fatal. From obstruction, calcareous disease of vessels, embolism and other causes, it may take place, and be absorbed, or the portion of brain in which it took place may be reduced to the consistency of cream.

The most common form is the anæmic or white, that caused by imperfect nutrition or blood supply, due either to wearing out of the brain by overwork or excess, or arterial or other forms of degeneration. There may or may not be pain in the head; likely to be sudden and occasional attacks of vertigo; diminution of intellectual power, slow and hesitating speech, embarrassment in answering questions, depression of spirits, tendency to shed tears on any excitement. Pricking and twitching in limbs, perhaps pain or numbness; tendency to sleep, especially after meals; more or less impairment of senses, mental faculties impaired, appetite often good, even greedy; limbs become the seat of painful cramps, stiffness or contractions; paralysis with spasm not uncommon, general sensibility more acute. In a large percentage of cases paralysis of one-half the body coming on suddenly without the loss of consciousness. Patient easily confused, has great difficulty in answering questions or in making himself understood. Great feebleness, weak and intermitting pulse, vomiting and constipation, difficulty in emptying the bladder, often retention of urine with uriferous odor, involuntary escape of stools; respiration labored, at last becomes stertorous, coma, ending in death.

The portions of the brain affected are often of the consistence

of cream. In all cases white softening is the opposite of that due to congestion. It is due to a want of nourishment or an insufficient amount of blood in the brain.

Softening of the Cerebellum is attended with fixed pain at the back of the head, impairment of sight, hemiplegia or paraplegia, tottering gait, vertigo, convulsive agitation, dullness of hearing, aphonia, eccentricities of conduct.

Tumors, Tubercular Deposits, syphilitic growths, hydatids, tape worm; cysticera are often found in the brain, and their existence is very obscure; headache, sickness, giddiness, mental depression, confusion, partial paralysis, epileptic convulsions.

As to the location of softening, it is thought that the corpus collosum, septum lucidum, fornix and cerebral substance around the ventricles are more frequently affected with red softening; whereas, white softening attacks the gray matter of the convolutions at base, optic thalami, corpora striata.

Treatment.—It is useless to disguise the fact that we have little to hope for in any kind of treatment; still, some cases are greatly ameliorated or their progress is arrested by judicious use of means.

The treatment is very similiar to chronic inflammation of the brain: daily bathing, flannel clothing, abundance of sleep, feet and extremities kept warm, blisters or plasters to nape of neck, bowels and kidneys cared for, diet pre-eminently of phosphates, oatmeal, boiled fish, wheaten grits, otherwise generous. Alteratives and tonics. There are two remedies of undoubted utility—iodide of potassa and ozone-water. We must never shut our eyes to the fact, that by far the greater number of cases are due to affections of the blood; hence, the very remarkable success of those two preparations. Indeed, so convinced am I of the fact of their great efficacy in softening, that I could fill this volume with cases that have made wonderful improvement; memory, good judgment and the senses being washed, as it were, free from germs of tuberculae, syphilis, etc. The alterative saxifraga is the best as the case progresses; glycerite of ozone and kephaline alternately will effect a good cure.

HYDROCEPHALUS.

Dropsy of the brain is often congenital and associated with cerebral malformation; when not dependent on that, it is more commonly the result of tubercular meningitis. It is rarely met with after two years of age.

The head in hydrocephalus usually attains a great size; the unossified sutures yield readily to the pressure of the fluid. One side may be larger than the other; bones thin and transparent; meninges thickened. Serum usually contained in lateral ventricles, which are expanded into one large cavity; occasionally

collected in sac of arachnoid, compressing brain. Quantity of fluid varies from a few ounces to a number of pints.

The predisposing cause is tuberculae. The exciting causes are numerous, such as would be likely to bring about inflammation, falls, blows, reflected irritation, as teething, worms, cholera infantum, etc.

Symptoms.—General symptoms of tubercular meningitis to a greater or less degree, followed by extreme wasting of the body. Although the child may eat ravenously there is no nutrition. The appearance is remarkable; skin very white, body emaciated, face small, with a large globular cranium and overhanging forehead: head drops helplessly on one side. There may still exist a little inflammation; if so, there will be headache, irritability, restlessness, sleeplessness and a susceptibility to noise, light, motion. Intelligence very feeble; great prostration and muscular weakness; rolling movement of head, eyeballs, perhaps squinting and blindness; great liability to epileptic convulsions; nausea, constipation, with dark-colored, offensive stools; grinding of teeth, screams on awaking. As the case progresses there is more pallor of the surface, a great deal of stupor, very slow pulse, dilatation or contraction of pupils, picking of nose and lips. In favorable cases the headache and irritability subside; the skin assumes a better color, there is more energy, appetite becomes more natural and the body nourishes. If there is great prostration, rapid pulse, paralysis, coma or convulsions, it is very apt to end in death.

Treatment.—Infants of a tubercular diathesis, with a tendency to any irritation of the brain, should be well cared for, and their constitution strengthened by every possible means. Nourishing food, abundance of good milk, beef juice, country air; seaside in summer; daily bathing, followed byunction of oil, and when they become older, great precaution should be used, especially against any mental strain.

To get rid of the effusion, be sure its cause is removed; that is, all irritation. Then the principles of treatment are precisely the same as effusion of serum or dropsy. Small doses of infusion of digitalis, infusions of parsley or asparagus with nitrate of potassa. Open bowels freely with:

Mandrake, pulverized, two grains; nitrate of potassa, five grains; cream of tartar, thirty grains.—Mix. Make one powder. Give one as often as the bowels will bear it. In addition, give two grains of iodide of potassa three times a day in infusion of squills. An infusion of hair-cap moss is also of great utility.

Diaphoretics, as warm alkaline baths. Compression of head a very doubtful proceeding; if attempted, let it be gentle and equable on all parts. Puncture, if resorted to, must be done

at coronal suture, about an inch and a half from anterior fontanelle, so as to avoid longitudinal sinus. The fluid to be slowly evacuated either by aspirator or small trocar and canula; gentle pressure must be made during and subsequent to its escape. Not to be resorted to until all other means fail.

HYDROCEPHALOID DISEASE.

A tubercular form of disease of the brain of children under two years of age, who suffer from the depressing effects of solar heat, city life and bad food. It has some resemblance to tubercular meningitis. It is very frequently associated with or is a result of teething and cholera infantum.

There is great prostration, heaviness of head, drowsiness, languor, chop-spinach stools, wakes from sleep in alarm, screams, dread of strangers, freaks of temper, irregular breathing, no fever, skin white and cool; surface of fontanelles depressed instead of raised, as in hydrocephalus.

The main point in treatment is to destroy the tubercular germ and overcome the diathesis. Alteratives, as saxifraga, iodide of potassa, tincture of iodine in milk, removal of all sources of irritation, correcting the secretions, bathing, pure milk, strong beef tea or finely pounded meat, raw meat, country or seaside air. General treatment for tubercule, glycerine of ozone and kephaline.

APHASIA.

Loss of the cerebral faculty of speech and of the power of expressing thoughts by writing or gesture. A simultaneous loss, in a greater or less degree, of the memory of words or acts, by means of which words are articulated, and also of intelligence.

That transitory form so common in the recovery from fevers, typhoid and diphtheria, due to congestion or anæmia, from which recovery always takes place, is not what we desire to notice; it is the form that is permanent and due to softening of the brain from embolism or thrombosis, hæmorrhage or poison of syphilis, or due to the absorption of lead, nitrate of silver in hair dyes, or the inunction of bismuth and arsenic in face powders, or to the terrible effects of nicotine in tobacco. These agents in their use cause irritation and softening of the posterior portion of the third frontal convolution of the brain on the left side.

Symptoms.—It may come on either slowly or suddenly, and may or may not be associated with germinal softening. It is ushered in by loss of the power of speech, which may be regained and recur again and again. In some cases words are recovered and employed and ultimately lost. Again, speech may make a temporary return under excitement, and then leave. Movement of lips, tongue and larynx may be healthy. There may

be consciousness of what is wished to be expressed, and yet complete inability to express the thoughts by speech, writing or even gesture. The patient may know the use of an object, but cannot name it. They may read, but if they understand what they peruse they forget directly, as they will pore over and over again the same page. There is the greatest possible diversity in the impairment of the mental powers, usually hemiplegia and a complete breaking down, with the worst form of cerebral disease.

In cases clearly due to the use of hair dyes, face powders, tobacco, syphilis, gout, if not of too long standing, there may be hope from the general treatment of chronic inflammation of the brain; especially, plasters and blisters to nape of neck, with alteratives and tonics. Iodide potassa in alternate use with ozone-water. These two remedies are of infinite value in clearing the brain of such deleterious compounds. No remedy of any avail in aphasia and white softening, due to the use of the auriferous or golden hair dyes, such as the peroxide of hydrogen. In aphasia of six months' standing, with hemiplegia, medicine seems powerless to effect a cure.

APOPLEXY.

An exhaustion of the cerebral pulp, with anæmia or congestion, and the devitalization so great as to cause the patient to fall down, as if from a blow.

Causes.—Anything that tends to exhaust the vital integrity of the brain, whether that cause may be predisposed to by hereditary tendency, peculiar types of conformation, aggravated or intensified by sedentary habits, high living, protuberant bellies, large heads, florid features, short, thick necks, high shoulders, a predisposition to hæmorrhage. Apoplexy is also engendered by disease of the liver, heart, kidneys, ossification and calcareous degeneration, and deposits of cerebral blood-vessels, gout, intemperance, embolism, impure air, tight neck-ties, stooping posture.

Varieties.—*Nervous or simple apoplexy*, fatal with a trace, is rare; the *sanguineous*, or that accompanied with extravasation of blood into the brain, very common; and the third form, the *serous*, in which the serum effused is simply present and has no relation to an attack. A stroke or an attack is usually followed by stupor or coma, and the comatose condition may cease in various ways. It may gradually pass off, leaving the patient well; or it may terminate in incomplete recovery, mind impaired and some part of the body paralyzed; or it may terminate in death. In the latter case, on examining the brain, we find either no appearance of disease or else extravasated blood is discovered in the ventricles, or pons varolii, or to a certain amount in the

centrum ovale majus, or in sac of arachnoid, or there may be a copious effusion of serum into ventricles or beneath arachnoid, with or without cerebral softening. That form which is fatal without any trace is very rare. That in parturient women is generally a clot embolism from ergot.

Warnings.—Frequently there are no premonitory indications or threatenings: when there is, they are characterized by headache, vertigo, *muscae volitantes*, or transient blindness, or double vision, ringing in the ears, a feeling of weight and fullness in the head, often bleeding from nose, fits of nausea, occasional sense of numbness in limbs, loss of memory, great mental depression, incoherent talking, drowsiness, indistinct articulation, and partial paralysis of foot, limb, face, eyelids.

An attack usually begins in one or other of three forms:

1. Patient falls suddenly down, deprived of sense and motion, like a person in a sleep; flushed or even livid; breathing stertorous, pulse full but slow, much below the natural standard; often convulsions, or rigidity, or contraction of the muscles of the limbs on one side.

2. Sudden, and it may be excruciating pain in the head, pallor, sickness, faintness, often vomiting; frequently the patient falls to the ground in a state of syncope, coma. In other cases, instead of falling, the pain in the head is accompanied by a slight and transient loss of consciousness, then headache, with heavy oppressed feeling in the head, which terminates in forgetfulness and coma, from which recovery is rare. Clot of great size is generally found in the brain.

3. Or it may come on with all the symptoms of cerebral hæmorrhage, paralysis of one side, loss of speech, but no loss of consciousness. The paralysis leads to coma, or it may pass off and the patient recover; or it may pass off and death suddenly occur in a few hours or days, or it may terminate in another attack.

Apoplexy has well marked and general characteristics: its duration varies in all cases from a few hours to as many days. Complete and total unconsciousness; pulse generally at first imperceptible or small, but as the patient rallies, stronger and fuller as the shock wears off, but slower than natural and often intermittent; respiration is slow and embarrassed or stertorous; frothy saliva flows from the mouth, and in bad cases the body is covered with a cold, clammy sweat; face is either congested, swollen, livid or very pale; eyes dull, glassy, pupils insensible to light, often one contracted or the other widely dilated; ptosis, or dropping of eyelids or squinting, according to the nature of the effusion and its location; teeth firmly clenched, power of deglutition lost or impeded, bowels constipated, motions passed involuntary, involuntary micturition. When it is of the san-

guineous type, it is not unusual for neck and even shoulders to show congestion and lividity. Incomplete recovery is almost always followed by paralysis.

Treatment.—If the condition in any of its three forms is suspected, the patient should be warned to guard against all bodily exertion, as running, jumping, lifting, hoisting, or violent mental emotion or passion, or straining at stool; and tea, coffee, tobacco, whisky, beer and venereal excitement strictly forbidden; heavy meals or much animal food, stooping, tight neck-ties, hot baths, and even extremes of temperature to be avoided. Diet to be nutritious but light, bed-room cool, well ventilated, to sleep on a hair or straw mattress with head high; hair kept short, shower or cold-water bathing, daily moderate exercise, bowels to be open twice daily. Two points of irritation between shoulders kept discharging, at least one inch square; a little capsicum in socks. If there is vertigo, bleeding at nose and headache, bowels more active, bromide of potassa, tinctures of aconite and belladonna administered. If not speedily relieved, wet cups to nape of neck and shoulders. If anemia is predominant, cinchona, mineral acids, with nutritious, easily digested food.

Suppose an attack to have taken place and that it is of the sanguineous type, with coma, labored breathing, pulse slow, imperceptible almost, the face turgid with blood, almost purple or black, neck ecchymosed, etc. Then our treatment would be precisely the same as for acute inflammation of the brain: shave the head and apply hot water, wet cup nape of neck and shoulders; mustard roller to feet and limbs, free purgation with compound powder of jalap and senna, with a few drops of croton oil, and repeat it; head high, and if stertorous breathing continue to be placed on right side; then veratrum viride with bromide of potassa; otherwise, general principles.

Suppose it is an attack with anæmic syncope: no pulse, sighing respiration, cold, clammy skin, pale face, etc.; we must stimulate, warm water to head, no cups nor free purgation, but stimulants. An effort must be made to rouse the patient with stimulating enemata, nutritious diet, and a course of treatment similar to chronic inflammation of brain.

CONCUSSION OF THE BRAIN.

A shock or concussion of the brain is usually caused by a jar, blow, fall, or some mechanical injury; and it may also be the result of some depressing passion.

In our present abnormal civilized condition, shocks or concussions are much more common than is generally supposed. By our improved means of traveling by railroads, jars and shocks are very detrimental to the brain. The strain and struggle for

existence, the exciting emotions, perverted desires, depressing passions, blighted affections. Certain drugs or poisons have a highly depressing or jarring effect, as alcohol; large doses of quinine, phosphorus, opium, etc., have a direct depressing effect on the cerebrum.

In the treatment of brain shock, absolute or perfect rest, so that the vital forces of that delicate organ may react. Rest in recumbent posture in bed. If there is headache, bowels opened, stimulants to feet and stimulating applications to head. Aconite, belladonna, valerian, sumbul or bromide of ammonia should be given in small doses, and pretty moderate doses of hyosciamus to procure an excess of sleep.

If brain shocks or jars or concussions were more promptly attended to, there would be fewer cases of cerebral disease. In our present mode of dietetics, our brains are literally starved for the want of a diet of phosphates. Our people should eat more boiled fish, oatmeal and whole corn bread to give this organ better nourishment.

HYPERTROPHY AND ATROPHY OF BRAIN.

Hypertrophy of Brain may occur in children, although it is more common between twenty and thirty years of age. The increase in volume is generally due to connective tissue. It may increase in size, and few symptoms manifest themselves until an attack of convulsions, which terminates in death. When the bony case does not enlarge, there are necessarily indications of compression, mental disturbance, varying from slight dullness of intellect to complete idiocy. Headache, vertigo, loss of muscular power or paralysis, unaltered or very slow pulse, severe epileptic convulsions. Death from coma.

Atrophy of Brain is becoming very common among boys. The strong-minded mother reacts upon the boy in imparting to him a simple incomplete development of certain convolutions above ventricles. So boys with that class of mothers are remarkable for small heads and effeminaey. Isolation or monotony contracts the convolutions. Tobacco whittles down the brain immensely; so does syphilis and other poisons.

Hæmorrhage in the Brain bears no analogy to apoplexy, only some of its symptoms may be present. It may come on in various ways, with congestion, from straining, stooping or from passion, and be accompanied by symptoms of apoplexy and paralysis of one side; or it may come on during sleep, patient waking up paralyzed; or it may come on suddenly, the affected individual falling or staggering, feeling faint, giddy, confused, but not unconscious. May vomit or become comatose, or turn suddenly hemiplegic; the comatose form most fatal. The principle feature in all cases is the paralysis of the opposite

side of the body from the clot. Sensation may or may not be affected.

Hæmorrhage may take place into any part of the brain and gives rise to an immense variety of symptoms. It is not necessarily fatal unless it takes place in the bulb or medulla oblongata.

Treatment.—Same as apoplexy, followed by a long alterative course, with two open sores at nape of neck.

DELIRIUM TREMENS, OR CHRONIC ALCOHOLISM.

Alcohol in any form, taken into the stomach, causes irritation of that organ, sometimes inflammation; it is then taken up in the blood and in that fluid circulates as a free agent; and in its passage through the various organs of the body it irritates and retards their working capacity, or arrests change or metamorphosis, and ultimately it finds its way to the brain, for which organ it has a special affinity, and where it imbeds itself and also irritates. It may excite the cerebral functions, but even that is followed by a double state of depression. The repeated imbibing of alcoholic compounds induces chronic inflammation of the brain, with effusion of lymph, which causes thickening or induration of its entire substance; besides, the brain being, as it were, steeped in whisky, undergoes a shrinkage and takes on atrophy. This shrinkage or whittling down of the brain, in addition to the state of chronic inflammation, gives us a peculiar condition of that organ, viz: atrophy, induration, with true anæmia of the brain.

This is the condition present in all cases of delirium tremens; besides, there is no organ in the entire body free from the destructive effects of the deadly poison.

In chronic alcoholism it is scarcely possible to realize the true degradation and disease produced: the brain suffering atrophy and anæmia, from the facial angle of longevity down to a cipher, fatty degeneration of heart, liver, kidneys: fat, a non-vital element, usurping the place of vital tissue. The fountains of life are deteriorated, and the drunkard's spermatozoa, if capable of vitalizing the female ovum, can only beget an idiot, or one of feeble mind or afflicted with tubercular brain disease. Besides thus dwarfing his offspring, his moral and intellectual faculties are blunted.

Alcohol causes a want of equilibrium between the gray and white matter of the nervous system; as a result, there is tremor all over, the tongue is very tremulous, large, flabby, white-coated, very moist, and when told to put it out is unable to do so, but thrusts it out; the breath is acidulous, and possesses a chloroform odor from the imperfect combustion of saccharine elements in the lungs; the skin is white, soft, doughy and acid-smelling;

the nose and cheeks may be red, as they are so abundantly supplied with sebaceous follicles, which are over-worked and in a state of inflammation, having to do the work of the liver.

The impetus of the poison falls upon the brain, irritating and poisoning that organ. The drunkard's headache is one aggravated by noise, light, heat, motion; vertigo is intense, so is the tinnitus aurium and *muscae volitantes*. The latter is very great. The minute filaments of the optic nerve are so depressed that they have lost their contractile power over the vessels of the aqueous humor and choroid; that the vessels supplying those structures have become varicose, and when the brain looks at the external world through the optical instrument—the eye—it sees the varicose vessels which it compares to objects in the external world; hence, the drunkard's sights are no hallucination, but a true pathological condition. Head often cool and moist; pupils at first contracted, latterly dilated; conjunctiva pale; mental derangement; expression of countenance wild; eyes fixed intently on some imaginary object; constant efforts to avoid them; motions sudden and rapid; tremor of the hands, limbs and tongue; pulse nearly natural; constant desire to move about; inability to concentrate his thoughts for any length of time; perfect inability to sleep; mind wandering and delirious; general appearance of debility; incessant irritability, restlessness and sleeplessness; appetite absent; constipation; delirium aggravated toward night; incessant talking; constant tremor and twitching of the muscles; great prostration, with an aggravation of all the symptoms, ultimately terminating in death.

As the pathology of this affection is well understood to be anaemia, atrophy and induration of the brain, the indications for treatment are very plain. The excitement, irritability and sleeplessness which are gradually wearing out the patient, must be relieved. The secretions are either arrested or perverted, and there is a poison undermining the powers of life.

If the patient is docile and obedient, it is an excellent plan to begin with an emetic of the compound powder of lobelia, with free drinking of bicarbonate of soda-water. Get the action of full, free emesis, if possible; follow this with a warm bath and an active purge of compound powder of jalap and one or two drops of croton oil. Then procure sleep either with fifteen-grain doses of chloral hydrate and bromide of potass, or hypodermic injection of a quarter or half grain of sulphate of morphia. After ten or twelve hours of sound, refreshing sleep, then place him upon a stimulant, such as thirty grains of capsicum every four hours in warmed milk, in alternation with half-teaspoonful doses of tincture of green root *gelseminum*. Abundance of fluid nourishment, beef tea, milk. Our remedies here are very limited, but they meet the points in the case with great precision.

Chloral and hypodermic injections, even when the patient is a raving maniac, seldom fail to effectually control him, and the subsequent action of the capsicum and gelseminum are unsurpassed. The patient should be kept quiet, all sources of mental irritation be removed, and otherwise well cared for.

In milder cases, remedies of less power may be used, as hyoscinus, to procure sleep; *cimicifuga*, where there is great nervous excitement and spasm; *liquor ammonia acetatis* may be tried; indian hemp operates well; *digitalis*, in some cases, might be substituted for the gelseminum. No whisky nor any alcoholic stimulant allowed, unless small doses of tartarized antimony are mixed with it, which speedily arrests the craving.

COUP DE SOLEIL, OR SUN STROKE.

A devitalized condition of the brain, caused by solar heat and evaporation of the serum of the blood.

It gives rise to faintness, a craving for water, heat and dryness of the skin, high temperature or coldness, great nervous depression, vertigo, tightness across the chest; pulse variable, often quick and full, at other times thin and feeble, so that it can scarcely be felt. As the case progresses heart's action becomes violent; stupor, so that the patient cannot be roused; face becomes pallid; vomiting, coma, great difficulty of breathing, contracted pupils. While in this state the conjunctiva may become congested, action of heart intermittent, and just prior to death dilatation of pupils, gasping respiration, and it may be vomiting.

In some cases symptoms are very insidious: mere listlessness and stupidity, with languor and debility, head feeling strange, yet in a few hours death. In other cases often exposure to the sun; the individual has suddenly fallen down insensible, made one or two gasps, and died in a state of syncope: the brain being enervated, the blood deficient of its serum (clotty,) and the secretions deranged. If recovery does take place, convalescence is apt to be retarded by a slight fever, some complications of heart, lungs, liver, kidneys, or from paralysis or prostration. Patient not free from danger for some time. A great while after apparent recovery symptoms of paralysis and insanity may be developed. In every case, just like recovery from inflammation of the brain, the patient is easily affected, and never the individual he was before the attack.

Treatment.—If one has to be exposed during the hot season to the sun's rays, quinine is our best drug as a prophylactic; besides, proper care of the dress and an abundance of water not iced. On no account must alcohol be used, as there may be utility in coffee or *malto cocoa*.

The greatest good is to be derived from the judicious use of

tepid or even moderately warm water, wrapping the patient in a nude condition up in sheets or blankets saturated with or wrung out of warm water, keeping them moist by pouring it freely over them, so that the skin may imbibe the water, an element essentially needed in the blood, besides the revulsive effects of the water on the periphery of the nerves on the skin. The head, also, should be encased in packs, and even copious enemata of tepid water. If the tongue is coated, an emetic of mustard and salt, allowing the patient to drink freely of tepid water and bicarbonate of soda. After it has acted gently, follow with half a teaspoonful of compound liquorice powder, in which one drop of croton oil has been rubbed up, and repeat if bowels are not promptly opened. Allow the patient as much water as he may desire to drink, for water is the remedy.

As soon as the patient can swallow, half teaspoonful doses of the sesqui-carbonate, freely diluted with water, is a good remedy to liquify the blood, given as often as indicated by the condition of the heart. If the patient does not react, no improvement, then cup the nape of neck, shoulders, and apply mustard plasters to feet and hands, still holding on to the water, and an alkali internally. If a stimulant is necessary, carbonate of ammonia, liquor ammonia acetatis and artificial heat; otherwise, the case should be managed like chronic inflammation of the brain.

EPILEPSY.

A weakness or irritation of a patch of the brain, with an impaired cerebro-spinal centre which leads on the slightest disturbance to an explosion between the positive and negative forces of that organ, which produces the characteristics of sudden loss of consciousness and sensibility, power of voluntary motion, with tonic convulsions lasting a few seconds, and followed by clonic spasm of voluntary muscles; cessation succeeded by exhaustion and coma. Attacks recurring at intervals. Without a weakened bulb and neighborhood epilepsy could not exist.

The causes may be embraced under three general heads:—
(1.) Centric causes. (2.) Reflex. (3.) Blood diseases.

(1.) Hereditary conformation, consanguinity, peculiar shape of skull, depression or excrescence from its walls, tumor, worms; weakened patches by falls and blows in infantile life.

(2.) Reflex, caries and overcrowding of teeth, vaulting of the roof of mouth, giving rise to irritation of the trigeminus, the most reflex nerve in the entire body. Irritation anywhere, especially in the abdomen, for of all the regions of the body none reflect more strongly on the brain than the visceral organs; so we must look well to the stomach and bowels for worms; if there is great mental depression, melancholia, for a loaded or

sacculated colon, the kidneys, bladder and irritation of the generative organs in both sexes, etc., etc.

(3.) The blood, the living germs of tubercle, cancer, syphilis, rabies, and even the ovum of parasites will nestle and form colonies in patches of the brain weakened by falls and blows, and thus increase the condition of molecular death.

Epilepsy is characterized by general languor, debility, lassitude: patient soon acquires a nervous temperament, sharp features, white skin, with an excess of brain-waste in urine in the shape of phosphates and chlorides. If the fits are about to appear, there are in about two-thirds of all cases what is termed a warning or premonitory symptom, which consists usually of some nervous sensation, different in duration and character, such as spectral illusion, hallucination of smell, taste, headache, giddiness, vertigo, twitching, confusion of thought, sense of fear, etc., etc. But the *aura epileptica* occurs in the large proportion of cases; some compare this to a current of hot or cold air passing by; others to a stream of cold water running on the skin, a fullness in head, a sense of burning or tingling or a pricking sensation, drawing inwards of the thumbs, a feeling as if insects were creeping, the sensation beginning in some remote part and extending to the head. Usually when *aura* ceases fit commences.

The real symptoms: white or cadaverous appearance or pallor of features, with utterance of a shriek or scream; and that may not take place, but the patient falls to the ground insensible, with loss of voluntary motion and violently convulsed: convulsive movements continue violent, usually more marked on one side than the other; distortion of face, gnashing of teeth, foaming at the mouth; protrusion of the tongue, which is often bitten; eyes partly open and suffused; eyeballs rolling and insensible to light; skin cold and clammy; perhaps involuntary micturition and defecation; vomiting; breathing laborious, seems about to be suspended; when the limbs are stretched out a deep sigh is drawn and the fit passes off. Patient left insensible and as in a sound sleep, with stertorous breathing, from which he recovers with a feeling of stupor and exhaustion and headache, but without any knowledge of what he has gone through. Some hours subsequently small ecchymosis often detected on face, neck and chest.

The fit may be very light or very severe; its duration may be a few minutes or extend to many hours. Fits, when slight, often only consist of giddiness, confusion of mind, loss of consciousness, little or no convulsion and stupor, and all over in less than a minute. Seizures occur at variable intervals; often occur at night without being suspected by patient or friends. Repetition of attack impairs memory, may cause cerebral hamor-

rhage, temporary or permanent paralysis, or dementia, idiocy.

The most hopeless cases are those due to centric causes in the brain or skull, defective nervous organizations, lesions of the meninges. That due to irritation, reflected or propagated, or to a morbid state of the blood, if not of very old standing, are amenable to treatment.

The great increase of epilepsy is due to the vices or defects of civilization, the brain being more susceptible to irritation, abnormal conditions of alimentary canal, uterine irritation, masturbation, venereal excesses, alcoholism, tobacco, syphilis, mercury, etc., etc.

Treatment.—The symptoms are those of a sudden explosion of accumulated nervous energy. From the periodical character of the fits, it is inferred that the accumulation of nervous energy goes on for a definite time in the brain and spinal cord until an explosion ensues, which spends itself upon the muscles of voluntary motion, which are thrown into violent action, and by these means the accumulation is exhausted—the explosion being followed by coma or deep sleep.

Many measures have been proposed for preventing the gradual accumulation and sudden explosion of the nervous energy constituting epilepsy, as improving nutrition, restoring mental and bodily vigor by any possible means, abundance of exercise in open air, daily bathing.

Treatment during a fit should be directed chiefly to protecting the patient from violence, and getting him out of the fit. All clothing should be loosened, so that the blood may have free circulation to and from the head and all parts of the body. A piece of pine wood should be placed within the teeth to save the lips and tongue from being wounded by the spasmodic movements of the jaws. The patient should be placed on right side on bed or floor, head well elevated, and restrained or guarded, so that no personal injury is inflicted. Cloths wrung out of warm water should be applied to the head; mustard to the feet. Enemas of some broth, or mucilaginous tea, with half a tea-spoonful of spirits of turpentine, operate very favorably. Tying a ligature around the limb in which the aura is experienced prior to the fit, to ward it off, of doubtful utility.

If fit lasts long, a hypodermic injection of one-quarter of a grain of sulphate of morphia in the cellular tissue of nape of neck or over deltoid instantly rouses the patient up. Snuff, inhaling nitrite of amyl, etc., rather to be avoided.

During the interval, while the fit is off, there must be a vigorous effort to prevent a recurrence or suspend the explosive tendency of the positive and negative forces of the brain with sufficient doses of bromide of potassa and other remedies to diminish or allay the reflex excitability and force of the cerebro-spinal

centres. Such a formula as one of the following is efficient:

Fluid extract of sumbul, four ounces; tincture of calabar bean, one ounce; bromide of potassa, one ounce; bromide of ammonia, two drachms; bicarbonate potassa, two drachms; tincture of belladonna, thirty drops.—Mix. One teaspoonful or more—sufficient to ward off the fits; or the following is cheaper:

Camphor water, four ounces; bromide of potassa, one ounce; iodide of potassa, two drachms; carbonate of ammonia, half an ounce.—Mix. Dose, from one to more teaspoonfuls, sufficiently often to ward off attacks.

Bromide of potassa is a salt of high diffusive power, readily entering and quickly leaving the blood. It should be given freely diluted with water on an empty stomach, otherwise, part of it escapes from the system without being absorbed. Besides, its well known power in producing anaesthesia of the medulla oblongata, thus diminishing central irritation. It has a similar effect on the motor and sensory nerves. Bromide of lithium is a more powerful salt than the potassium, containing more bromine, but is not efficient in epilepsy. The dose of the bromide of potassa should be from forty to sixty grains per day; not one grain more should be given than the quantity required. The addition of the bicarbonate of potassa in the one prescription and carbonate of ammonia in the other, increases the action of the bromine materially; besides, they are anti-acid and protect the stomach against *brominism*. The rule is, bromine enough to act successfully on the bulb, but not to produce a catarrhal condition of mucous membrane with a train of miserable symptoms in which the remedy must be stopped. Bromide operates best on the heavy fits; it has less effect on the light.

If it is a boy or young man with short hair, an ointment of equal parts of chloral hydrate and camphor dissolved in vaseline, should be rubbed into the entire scalp at bed-time; in case of a lady, well up in nape of neck. It is a valuable help, whether it acts by continuity of tissue or by causing some molecular alteration in the periphery of the nerves and occasioning the same alteration in the nerve trunks, or in their nuclei, or by reflex action, it is impossible to say.

The liver and colon should be roused into action by compound liquorice powder and colocynth. There are a large number of cases where the central irritation is kept up by eccentric causes as a worm, fistula, tight or elongated prepuce, or clitoris, which latter being removed, the central irritation is easily combated by the application of ice to the sympathetic nerve which issues from the last cervical and upper dorsal vertebrae, and by small doses of the bromine. The value of ice is effective in proportion to the youth of the patient and acuteness of the case. It is rarely beneficial in the chronic epilepsy of adults.

Young children, from one to six years, sleeping in closed rooms, are subject to frequent attacks at night of screaming, with insensibility and semi-convulsions, due to the protracted inhalation of air deficient in oxygen and laden with carbonic acid gas. For this the chlorate of potassa is a sovereign remedy, and for the true convulsion and epileptic attacks in children it often proves curative. It is of no utility in the adult, unless combined with bromide.

While warding off attacks, remove the cause if it is admissible.

In Infantile Epilepsy, we must look for falls, blows, teething, irritation of the stomach and bowels, worms, and remove by lancing gums, emetics, cathartics and vermifuge remedies.

If caused by fright or mental emotion, aconite, belladonna, hyosciamus, citrate of caffeine, etc.

If caused by indigestible substances, emetics, compound antibilious pills, etc.

If by worms, the active principle of pomegranate root, valdivine.

If by suppressed menstruation, compound betin pills, warm teas, etc.

If by masturbation, large doses of tincture of green root gelseminum, with circumcision and shortening clitoris.

If caused by blood disease-germs, as tubercle, syphilis, etc., etc., iodine, glycerite of ozone and water, nitric acid in compound tincture of cinchona, iodide of potassa, phytolacca, general alteratives and tonics, as laid down under each; and in all cases, either repeated blisters or irritating plasters, or the antimonial plasters below nape of neck, an open sore, so as to attract the germs of disease to another pasture-field, away from the vital organ—the brain.

The use of ozonized remedies in the treatment of epilepsy marks an era of great success, and bids fair to bring this hitherto stubborn disease within the class of curable affections. Our plan of treatment, after holding off the fits, is a removal of causes and treatment for that, an alterative and tonic course, and a judicious use of ozonized glycerine and water.

In distinguishing the true epilepsy from the feigned, the following are good land-marks for a guide. In the feigned, the patient does not fall violently but deliberately, to avoid injury; eyes are closed but pupils contract to the stimulus of the light; tongue and lips never bitten; face red, congested instead of being pale; skin healthy; blow snuff into the nostrils and patient sneezes. A proposition to apply the actual cautery to the spine effects an instant and permanent cure.

Picrotoxin.—The tincture of *cocculus indicus* in ten drop doses morning and night, and gradually increased until it produces cerebral congestion. It keeps the cephalic vessels in a state of permanent relaxation, and thus prevents the vascular

spasm which produces the sudden anemia of the brain, the fundamental condition of the initial stage of an epileptic attack. It is most useful in long-standing cases in which bromine has failed. Remedy to be increased very gradually to a point to be effectual.

CATALEPSY.

A very remarkable disease of the brain and nervous system, characterized by a sudden loss of the senses, intelligence and voluntary motion; the patient retaining the same position during the paroxysm as that held at the moment of the attack, or in which he or she may be placed during its continuance. Seizure may last a few minutes, several hours or even days, without regard to regularity of periods. There may be premonitory symptoms, as headache, irritability of temper, yawning, tinnitus, vertigo, palpitations, impairment of mind, confusion of senses, all coming on suddenly; the eyes are fixed, either open or shut; pupils dilated; restoration or recovery takes place suddenly, accompanied with sighing, pain or confusion in the head, with no recollection of what has occurred. No efforts to restore consciousness are effectual. Nervous and hysterical women are most liable to its attacks.

Catalepsy differs from ecstasy, somnambulism or clairvoyance, in its being associated with disease. Absence of mind is, in many cases, a mild form of catalepsy. Mesmerism and spiritualism are also a species. There is usually little danger from the attacks, but the tendency is to terminate in apoplexy, insanity or white softening. It is often associated with some organic affection of the brain, as a tumor, a bony or calcareous growth. Anything that tells badly on the nervous system, as grief, worry, debility, intense mental application, the nervous exhaustion of tubercle, syphilis, mercury, may give a predisposition to it.

The exciting causes are, violent mental emotion, as fright, terror, suppression of menses, uterine and ovarian disease.

Treatment—Embraces general alteratives and tonics, directed to the supposed cause. Irritating plaster to nape of neck, skin well stimulated, bowels active, shower baths and a persevering use of ozone-water and glycerite of ozone.

Ecstasy.—A deep trance, a condition analogous to catalepsy. The patient is insensible to all external impressions and is absorbed in the contemplation of some imaginary object. Eyes immovably fixed; will give vent to grand thoughts, impassioned sentences, form a connecting link between the seen and the unseen, between heaven and earth; fervent prayers, beautiful hymns are recited with great fervency and zeal. It gives rise to a species of religious fanaticism, whereby the person (for filthy lucre) can fall into a trance, an incipient stage of spirit life, and

give strange manifestations. It affects women mostly, or effeminate men who suffer from hysteria, or that peculiar devitalized state of nerve centres. Pecuniary gain, faith, imagination, enthusiasm, and an irresistible desire to imitate and become notorious, will explain the condition best.

Same treatment as for *Hysteria*.

CONVULSIONS.

Spasms or convulsions consist of violent and involuntary contractions of muscles of the entire body, occurring in paroxysms and usually attended with unconsciousness. Sometimes the contractions are partial and of considerable duration, and attended with hardness of affected muscles, (tonic spasm) like cramp or tetanus; in other cases quickly alternating contractions and relaxations (clonic spasm).

Causes.—Disease of the brain or its membranes; falls, blows; insufficient supply of pure blood being sent to the brain or nerve centres; to irritation reflected from gums in teething, worms, indigestible substances; or to disease of kidneys, uræmia, pregnancy, masturbation; morbid states of the blood, as in hydrophobia, fevers, hooping-cough; to poisons, as well as to fright, passion, sudden mental emotion.

Symptoms.—There are no warnings as in epilepsy. A part or the entire body may be affected, as the face, one-half the body or a single limb. Consciousness is generally but not always lost. During a paroxysm there is distortion of the features, pallor or lividity of the face and neck, staring or protruding eyeballs, insensibility of pupils to light, grinding and gnashing of teeth, protrusion of tongue, involuntary evacuations, laborious respiration. There may be only one attack or several, followed by a tendency to sleep. They are seldom fatal unless connected with some grave disease, as rabies or degeneration of kidneys. Convulsions of one limb, of face or half the body, not attended with loss of consciousness. Convulsions different from epilepsy, in the fact that there is no patch of the brain suffering a condition of molecular death, consequently there is no central cause keeping up a periodical attack.

Treatment.—Loosen patient's clothes, especially about neck and waist. Place the patient wherever pure air can be breathed. Warm mustard bath and cold effusion to the head; mustard plasters to limbs; enemata of lobelia with turpentine, to be repeated if patient does not quickly recover. If an adult, cups to nape of neck; if a child, apply ice. As soon as swallowing can be performed, compound lobelia to free emesis, followed by some active purgative. In children, compound liquorice powder; in an adult, two drops of croton oil in fifteen grains of compound powder of jalap. The patient to be kept upon:

Compound syrup lobelia, four ounces; bromide of potassa, one ounce; bicarbonate potassa, three drachms; tincture calabar bean, half an ounce.—Mix. Doses sufficiently large and often to hold spasmodic action in abeyance.

Cause, if possible, ascertained and removed. If the teeth, free scarification of gums; if worms, santonine, etc. General tonics and alteratives if no cause can be ascertained.

Puerperal Convulsions.—First try compound lobelia by enema and mouth, with a free action of bowels; if that fails, a light inhalation of chloroform, followed at the same time with a hypodermic injection of a quarter of a grain of sulphate of morphia. If labor has not progressed and the convulsions are persistent, not broke up, induction of premature labor. If they come during parturition and not due to ergot, hasten delivery by forceps; patient under anæsthetics. If ergot has been given, be careful of anæsthetics. If they occur after delivery and no ergot used, a free use of chloroform and hypodermic injections of sulphate of morphia; if ergot has been given, alkalies, belladonna and compound lobelia to maintain perfect relaxation.

Infantile Convulsions.—Attention to teeth, diet, bowels, worms; cold to head, ice to spine, warm bath, open bowels. Compound lobelia to emesis and afterward in small doses, followed with bromine.

INSANITY.

Sanity or a sound mind may be defined to be a condition in which a man can discharge his duty to his God, his neighbor and himself. Any deviation from that is regarded as insanity, or derangement of the intellect or mind.

Causes.—Are very varied. Hereditary transmission of types or conformation and characteristics of cerebral pulp; contraction of the convolutions in the offspring of those who suffer from sameness, isolation, monotony; marriage of blood relations or persons identical in temperament; want of brain elements in diet—brain starves, defective nutrition. The brain of a father in whom the syphilitic germ lurks, or whose cerebrum is atrophied with alcohol, or whittled down by masturbation in early youth, or sexual excess in more advanced years, may stamp the impress of insanity on his offspring. Besides, those causes may act directly on the individual, to which may be added tobacco, opium, chloral, quinine, poisons, the struggle for existence, the wear and tear of civilized existence, religion, blighted affections, passions, grief, anxiety, distress, injuries upon the head, want of sleep, over-exertion, excessive mental strain, blood diseases, irritation in different parts of the body transmitted to the brain, the action of the sun.

Warnings.—Symptoms that should excite alarm are: severe

and frequent headache; giddiness and mental confusion; paroxysms of irritability and loss of temper without any cause; unfounded suspicions; inability to perform usual avocations; weariness of life; sleeplessness or lethargy; loss of memory; some decided deviation from usual line of conduct; defective articulation; impairment of sight; flightiness of manner; shuns society, often tortured with obscene thoughts; has alarming dreams; often suffers from dyspepsia.

Complications.—Mental diseases are often accompanied with a variety of bodily disorders. Two of the most common of which are progressive paralysis of the insane and insanity with epilepsy.

Forms.—As causes are not all alike, different forms have been marked, but they are apt to run into each other. We shall enumerate the most common varieties.

(1.) **Mania.**—Stark mad, general delirium, reasoning faculty disturbed or confused, ideas erroneous, absurd, wandering, manner violent, excited, mischievous. It may come on suddenly or progressively, and is often preceded by neglect of family or business, distrust of best friends, anger, rage, despondency without cause, sleeplessness, constipation; or without premonitory warning it may set in with general delirium and extreme fury, with shouting, howling, laughing, crying, reciting for hours together; angry, furious, destructive, ceaseless movements, weakness, exhaustion, emaciation, aversion to food, incontinence of urine. Recovery, if it takes place, is preceded by sleep, with appetite returning and a gradual subsidence of the agitation and delirium.

(2.) **Monomania** or partial insanity. Irrational on one subject; deranged to a certain degree, or is under the influence of some one particular delusion. Mind may be vigorous, but under the influence of one erroneous notion. Manner in accordance with the prominent idea. A false principle seized upon and pursued logically, and from which legitimate consequences are deduced. Thus, a monomaniac may conceive the idea that he is very brittle, and impressed with this idea takes remarkable care of himself. He may conceive the notion that he is a divine instrument of vengeance and commit murder. Aside from this partial delusion he will act like other men.

There are numerous special forms of monomania, viz:

Melancholia.—Characterized by fear, moroseness, despondency, an unwillingness to move, talk or take food.

Autophomomania.—One who desires to commit suicide, self-murder; the desire to kill is so great that most extraordinary steps will be taken to effect his purpose.

Androphomomania.—An uncontrollable desire to commit murder.

Pyromania.—Seized with a desire to set buildings on fire, to commit arson.

Kleptomania.—Irresistible propensity to steal.

Theomania.—Religious delusions.

Erotomania.—Amatory madness; it may be a chaste and honorable affection, or it may be combined with nymphomania in women and satyriasis in men. In all forms of erotomania there is great mental and physical depression. Single women often suffer greatly. It is usually associated with disease of the genital organs or brain.

(3.) Dementia.—That condition in which weakness of intellect, induced by accident or age, is the prominent feature. Mind feeble, ideas confused, vague wandering, memory greatly impaired; patient ignorant of time, place, quantity and property; very forgetful, undecided, selfish and silly. The demented have neither likes nor dislikes, affections nor aversions; care for nothing. Paroxysms of restlessness and excitement; involuntary action of bladder and rectum; terminates in paralysis.

Acute Dementia may occur in the young from shock, anxiety; patient usually lies in bed, refuses food; mental faculties apparently in abeyance; pupils dilated; no control of sphincters. Nourishment and moral influence are curative.

(4.) Idiocy.—A partial or complete absence of intellect, owing to congenital malformation of the brain; mind not developed; facial angle a little above a cipher; ideas simple or few; manners foolish, loathsome, disgusting; head misshaped; countenance vacant; articulation and gait often imperfect; saliva dribbling. Occasionally the idiot is blind, deaf, mute.

We have stated that those four forms may be complicated, or terminate in epilepsy or paralysis.

Insanity with Paralysis.—It may be progressive, partial or general. Paralytic lunatics seldom live over two years. The paralysis may come on in a person not previously insane, or in the course of any variety of mental disease, increasing as the power of the mind diminishes. Often the first indication is exaltation of ideas, the sufferer conceiving the idea that he is rich, strong or a wonderful person; mental change; impediment to movement of tongue; convulsive trembling of lips; articulation muffled and imperfect. As this impediment to speech increases, there comes on tottering, uncertain and vacillating movements in walking, handwriting changes; a vacant look, intelligence and judgment lessened; fits of irritability, hallucination and illusion; loss of memory, debasement of moral character; pulse frequent and feeble, small and long; tongue on being protruded moves from one side to the other; pupils immensely dilated; paralysis of sphincters, so that secretions are either retained or pass involuntarily; more generally the

latter. As the disease progresses patients lose all power of articulation; they continually grind their teeth; their weakness such that they cannot walk or stand, and all traces of intelligence become abolished, and they remain torpid and motionless.

Insanity with Epilepsy.—Always incurable. The conduct of the epileptic insane is most ferocious, homicidal or suicidal. Filthy and disgusting in their habits.

Treatment.—When any of the forms are suspected, rest of mind, change of occupation, sleep extended to ten or more hours; attention to the functions of the skin, bowels, liver, kidneys and sexual system; removal of any bodily disorder or disease, such as uterine derangement, syphilitic taint; a very nutritious diet, warm clothing, out-door occupation or amusement, cheerful recreation, healthy evacuations to be obtained from the bowels by vegetable alteratives and mild aperients. General strength to be improved by tonics. All bad habits, as onanism, to be prevented. Gentle attempts to revive affections, strength, and build up intellect. Baths, as the douche, shower, warm or vapor, are of utility. If food is rejected, correct any derangement of the stomach. All harshness and mechanical restraint to be avoided if possible. An effort made to secure the patient's confidence; every promise made to be faithfully kept, and as much indulgence as is consistent with the true management of the case allowed. The general treatment for chronic inflammation of the brain should be inculcated, and special remedies should have a fair trial.

Bromide and chloral are of great efficacy; so is henbane for great restlessness. Calabar bean is of great service. The dose, to be effectual, must be large, out of all proportion to ordinary cases.

Dipsomania.—An intense craving for stimulants, especially intoxicating liquors, attended with general restlessness, irritability and sleeplessness. Hard drinking is a degrading vice; the habit may be difficult to overcome, but we cannot accept the view that the dipsomaniac is an irresponsible being.

Excessive use of alcohol causes atrophy, induration and anæmia of brain, chronic inflammation of the stomach and thickening of its walls; fatty degeneration of liver and kidneys, dropsy, tubercle, and irritation of lower lobe of right lung and deposit of tubercle, pulmonary phthisis beginning at base and progressing upward.

If organic changes are not grave enough to bring about a fatal termination, a rapid cure can be effected by substituting erythroxyton coca for the whisky, which has no injurious effect upon either the mental or physical powers, but the opposite. A discontinuance of the alcohol and suitable doses of the erythroxyton coca every hour effects a rapid revolution.

Puerperal Mania.—A form of insanity occurring in women after delivery; usually of short duration, often four or five days. It is supposed to be caused by tedious, protracted or difficult labor, hæmorrhage, embolism from ergot, worry, or depressed states of the vital forces.

The ordinary symptoms are sleeplessness, restlessness, irritability, with severe pain in the head, a diminution or arrest of the secretion of milk. In some cases fever; in others prostration. Delirium often violent; tendency to suicide or child murder.

If caused by exhaustion or hæmorrhage, irritation reflected, support the brain and nervous system with quinine, juice of meat, and resort to hypodermic injections of sulphate of morphia; if due to congestion, embolism, dry cups to neck and spine, mustard to feet, free action of bowels, with liquor ammonia acetatis in alternation with tincture of belladonna. Patient kept quiet under the control of a skillful nurse.

Erotomania.—Under which may be classed *nymphomania* in women and *satyriasis* in men. A mania for sexual congress, caused by excessive venery or masturbation. Morbid states of the clitoris, as hypertrophy, predispose to it, as well as elongation of prepuce or foreskin. In very rare cases it may be due to irritation of spinal cord or disease of spine at the lower dorsal or upper lumbar vertebræ. This irritation is often the result of onanism in either sex. Disease of brain may be a cause, as extravasation of blood or lymph in the corpora cavernosa.

Large doses of tincture of green root of gelseminum with bromide of potassa are very useful, with suppositories of belladonna and opium.

SUICIDE.

Suicidal mania is a peculiar morbid state of the brain of civilized man in which its typical fissures coalesce. A deviation from the normal type takes place termed *atypic*, which is present in hereditary insanity, and in the boy children of mothers who have exhausted their mental powers in literary pursuits, over-stimulating their nerve-power and thus causing a defective power of brain assimilation in their offspring. It is a low state of human brain in which the facial angle is lowered.

Maternal impressions also give rise to it, as the witnessing of the slaughtering of cattle and killing of fowls; the insatiable desire of some mothers during pregnancy to have criminal abortion performed, or in taking emmenagogue drugs to destroy and evacuate the contents of the uterus, thus impressing a suicidal disposition in her child. The true influence of our present trashy, demoralizing literature, can scarcely be adequately appreciated as a prolific cause; besides, we have most important factors

in isolation, solitary confinement, masturbation and supposed loss of sexual power. The worry, the struggle for existence, is supposed to be a prominent cause; but this is not correct, because suicide is more prevalent among the unmarried and the widowed than among the married, in whom the struggle is greatest. The anæmia of the brain and cord induced by excess of study and sexual losses is an important factor. Infidelity, Darwinism have an important bearing in its production.

It is also to be regarded as epidemic. There is a singular regularity of the law which governs the return of suicides. The regularity is conclusive. There is a perfect uniformity with which the numbers of suicides are repeated from year to year in each country, especially in those countries in which the rate of suicides is high, such as France, Germany, England and the United States. Side by side with this remarkable regularity is a progressive increase of this morbid condition during recent years in the above-named countries.

It has, besides, a seasonal distribution, the first months of the year being few, but a steady increase to June, when it is at its height, and from its maximum there is a steady decline to the end of the year. The variations in the prevalence of suicide in different localities depends a good deal on their moral, social and religious status and absence of monotony. The influence of sound, honest Christianity (no sham) retards it. In Scotland, where the rigid Presbyterian has a hold; in Ireland, Spain and Portugal, where Catholicism is pure, the affection is rare. The number of suicides increase in countries where religion is a mere show or trade-mark. The proportion of suicides to the population is less where the tenets of the Bible are absolute, whereas the largest proportion occur where infidelity is rampant, as in Germany and the United States. In Europe the pure Germanic race show the highest proportion of suicides, followed closely by the Scandinavian races; whereas, among the Latin race, all except France, the rate is low, in Russia seldom known.

In the present state of pathological anatomy, the old theory of suicide being the effect of the struggle for existence and of human selection, which works according to the laws of evolution among civilized people, will not stand good. The proportionate relation between male and female suicides is pretty constantly from three to four males to one female. The proportion of suicides is largest between forty-five and fifty-five, very few taking place later in life.

The humanizing effects of an implicit faith in God, of man being part and parcel of that immortal existence, and of endless immortality well grounded into a people, seems to be the best prophylactic.

NIGHT-MARE.

This is a peculiar condition of the nerve centres, consisting in a true anæmia of the brain and sympathetic system. It is impossible to locate it precisely, although the co-ordinating chemical centre at the base of the brain is chiefly affected.

The exciting causes are indigestion, debility, late and heavy suppers, great fatigue, worry, over-study, breathing impure air, sewer gas, badly ventilated room, intoxication, sleeping on back, food indigestible, anything that would be likely to load the blood with any impurity.

Symptoms.—The patient in sleep feels an oppression, a weight about the stomach and breast; he groans, is in great distress, dreads suffocation; he fancies himself in imminent danger, and tries to escape, but cannot move; he imagines himself about to fall over a precipice, to be drawn into a river or eaten by wild beasts, or consumed in a burning house, etc., etc.

Treatment.—The affected person should eat a very light supper or none at all; keep the mind free from care and anxiety; no study; have a well-ventilated room to sleep in, free from gases, growing flowers; must sleep on right side; have a daily bath and massage; bowels to be well regulated and abundance of exercise in the open air.

It is to be looked upon as a true condition of cerebral debility, so the diet is to be essentially of a brain-nourishing kind: oat-meal porridge, boiled white fish, animal food, steaks, chops, poultry, eggs, corn bread, fruit and vegetables. He must eat no pies, pastry, cabbage, nuts, salted meat or fish, nor no red fish, like salmon, for that abounds in oil, and although very stimulating and nutritious is heavy and does not agree well with a weak stomach.

As remedies, glycerite of ozone, kephaline, aromatic sulphuric acid and quinine, and other tonics.

HOME-SICKNESS.

The Anglo-Saxon are the most cosmopolitan of races, adapting himself to almost any country and climate on the globe; but he cannot do this in all countries and with impunity, for in some he is compelled to exercise a care incompatible with actual work, which condition renders him a mere cipher. The North American continent is perhaps the most noted example of a country in which all races seem to thrive to perfection.

Man has an affinity for the spot of earth on which he originated and on which his ancestors were raised, an indigenous faculty, a cohesive or homogenous principle that enables him to thrive better, live longer and ward off disease more effectually than if he were transplanted to a new or foreign soil. So great is this innate faculty in some families that if they migrate they

become sufferers from a peculiar train of nervous symptoms, until the law of habit and affinity take their place. The ungratified desire to return home may give rise to a long train of symptoms of which melancholia is the most prominent. Great bodily and mental debility and depression; loss of appetite, inability to procure sound sleep. In some cases there is a gradual wasting of the body, with delirium, fatal prostration and other diseases. These are usually overcome by kind treatment, exercise in the open air, change of scene, amusement, nourishing diet, baths, warm clothing, regulated secretions and remedies to procure sleep. If all fail, a temporary return home usually effects instant relief.

The home-sick suffer from a thousand inconveniences and are very liable to take on disease especially of a nervous type, which give rise to habits that are deleterious to his future welfare and progress in life. Of the various families of the white race the Celts suffer most in climatizing. There is more repugnance in the race to fix its stock upon a foreign soil than with the others.

TETANUS, OR REFLEX ACTION.

Of all diseases of the nervous system there is none so appalling as tetanus. The power of the medulla oblongata to receive irritation from a distant point and to have it indelibly fixed there, is an interesting study. An irritation of gray or sentient nerve tissue in any part of the body, which irritation is transmitted to the medulla oblongata, setting up an irritation there similar in kind and degree, which, if its intensity is sufficient, is reflected back by the white, fibrous or motor nerves that supply the muscles, which causes a contraction or spasm. It is necessary that there be an impairment of vital force and that the irritation be vital, such as a laceration or tear, or bruising of a nerve. Slight or low grades of irritation simply depress or enfeeble the medulla—the seat of life, causing a defect in nutrition or a degradation of elementary molecules—such a condition as tuberculæ.

Irritation, great in kind or degree, reflected according to this reflex law, setting up the same kind or condition in the medulla and from thence reflected back by the muscles, which cause long-continued contraction or spasm. The spasm being continuous and hence spoken of as a tonic spasm or spastic contraction, in contradistinction to the clonic spasms of convulsions, where there are ultimate contractions and relaxations.

Causes.—A tear or laceration of a nerve or its neurilemma, such as a lacerated wound, a tooth merging through the indurated gums; a worm nibbling at the periphery of a sentient nerve in the bowels; the presence of the head upon the sacral plexus of nerves in labor. When from a wound it is called

traumatic; when from internal irritation, like a worm, or invaginated bowel, *idiopathic*.

Symptoms.—When an attack takes place it usually sets in very suddenly. Muscles of the jaws and throat are first affected. Patient complains that he has taken cold, as if he had a sore throat or stiff neck; but stiffness and uneasiness soon increase and extend to the root of the tongue, causing difficulty in swallowing. The temporal and masseter muscles gradually become involved, so that the jaws become fixed and mouth firmly closed, thus giving us what is termed *trismus*, or lockjaw. As the entire spinal cord is a reflex centre as well as the medulla, if the irritation proceeds down the cord, the remaining muscles of the face, trunk and extremities become involved in the spasm. Angles of mouth drawn outwards and upwards; muscles of neck, back and abdomen, hard, tense, contracted and from time to time violent contractions occur. Spasms never entirely cease, except in some cases during sleep; aggravated every quarter of an hour or so, increased, cramps lasting for a few minutes and then partially subsiding. When the nerves that supply the strong muscles of the back are most implicated or affected, they draw or bind the body in the shape of an arch, the patient resting on the occiput and heels, which is called *opisthotonos*. If the nerves that supply the anterior or front muscles of the body are weakened by any cause, the irritation may exhibit or spend itself there and thus bend the body forward by strong contractions of the muscles of the neck and abdomen; this is called *emprosthotonos*. If the nerves that supply the muscles on either side be affected or weakened, the irritation may spend itself there and the body be drawn sideways, which has been designated *pleurosthotonos*. By and by, the nerves that supply the involuntary muscles become affected. Frightful suffering, caused by tetanic spasms: face pale or as white as snow; brows contracted; skin covering forehead corrugated; eyes fixed and prominent, sometimes suffused with tears; nostrils dilated; corners of mouth drawn back: teeth exposed and features fixed in a grin—*risus sardonius*. Respiration performed with difficulty and anguish; severe pain at the sternum or pit of the stomach; great thirst, but agony increased by attempts at deglutition; pulse feeble and frequent; temperature very slightly raised; skin covered with perspiration; patient cannot sleep, or if he does, it is only for a few minutes at a time. In spite of all the suffering the patient's intellect remains clear and unaffected. It terminates either in death or recovery, or by a breaking up of the spasm into chronic, from which, with proper management, recovery is almost certain.

The duration of an acute attack is usually between three and five days, death taking place partly from suffocation, partly

from exhaustion. It is very easily recognized by its history and symptoms, the absence of fever, the clearness of intellect and the continued spasm. No other disease like it. The appearances after death are great serous effusion in ventricles of brain, around the spinal cord; the whiteness of skin and laceration of muscles by the spasm is also present.

Treatment.—If possible move the bowels freely with compound powder of jalap and senna with one drop of croton oil. Apply at once the galvanic cautery at a white heat every three quarters of an inch on both sides of the spine, from the nape of the neck down about ten inches. After its thorough application, poultices composed of equal parts of flaxseed meal, pulverized lobelia and stramonium, should be applied as hot as can be borne and changed every three hours. While this is being done, an effort must be made to relax the spasm, as the recovery of the patient depends upon that. For that purpose, take one heaped teaspoonful of lobelia seed, fresh crushed, one teaspoonful of the fresh plant of lobelia, one tablespoonful of American valerian, and one tablespoonful of pulverized capsicum: place all in half a pint of brandy, shake well, let it settle a few minutes, then begin to give a teaspoonful every few minutes until the spasm relaxes. If there is a hot bath handy, put the patient in it (97° Fahr.) Throw in the bath a pound of lobelia, and while in the bath enemas of a strong infusion of lobelia should be given. The lobelia, by the stomach, bath and rectum should be pushed to thorough relaxation of spasm, avoiding emesis if possible. If there are no facilities for a hot bath, then cloths wrung out of a decoction of lobelia should be applied to chest, abdomen, thighs. Half an hour is sufficient for the bath, but if cloths are applied they should be constantly used, keeping them hot and moist. If spasm breaks, the case may be considered pretty safe, if well managed. The moment the patient can swallow give thirty grains of bromide of potash every two hours, with five grains of bicarbonate in a tablespoonful of camphor water or fluid extract of sumbul; in alternation with that, administer from half a teaspoonful to a whole teaspoonful every two hours of the tincture of calabar bean, at the same time continuing the lobelia mixture in small doses or less frequent intervals. In this way make an effort to carry the patient over the fifth day, paying proper attention to diet, the bowels and bladder.

If there is a wound or some irritating body in the tissues, the wound should be carefully attended to; irritating particles such as spicula of bone or other bodies removed; the nerve, if lacerated or torn, might be divided and poultices of lobelia and stramonium applied. Otherwise the wound should be treated on general principles. There is no use in dividing the nerves high

up in the limb; no use even in amputation, for when the irritation is once stamped on the medulla oblongata, it is permanent; so that the true treatment is to diminish or wipe out the irritation of the cerebro-spinal axis all through the case. In no case would it be safe to discontinue the use of those three remedies, lobelia, bromide of potassa and calabar bean, for three or four weeks. The quantity and frequency could be gradually diminished.

Spasm well broke between fifth and tenth day, aconite, belladonna, quinine, conium might be tried.

If there seems to be any septic or morbid matter absorbed, sulphurous acid or sulphite of soda should be given.

Remedies that are positively injurious and likely to cause death: inhalation of ether, chloroform; hypodermic injections of any kind, opium or its alkaloids positively injurious; chloral, hurtful; those and other remedies of the same class produce congestion and polar excitement of the spinal cord.

Trismus Nascentum.—Infantile tetanus, nine-day fits. Tetanus occurring in infants after birth, from cutting the cord with blunt scissors, irritating applications to the navel, as trichinous lard, etc. Very rare in this country. Nevertheless, great care is necessary to guard new-born children from cold, foul air, poisoned lard to skin, imperfect cleaning of sebaceous secretion, or from retention of meconium. Cord should be properly cared for; never left in charge of an ignorant nurse,—invariably fatal.

Puerperal Tetanus may make its appearance during or subsequent to labor. Pressure of the fetal head upon the sacral plexus of nerves is the common cause, which irritation is reflected to the medulla oblongata causing the peculiar changes there, which irritation is transmitted by the motor nerves that supply the muscles, hence the permanent rigid spasm. It is well to observe that the true symptoms are developed, because in the puerperal state we have conditions of spasm dependent upon enemia or congestion, that require a different mode of treatment. The mode of management here is to deliver as rapidly as possible, administer the lobelia mixture by mouth and rectum, follow with bromide of potass, calabar bean; sinapisms to nape of neck, with mustard and free purgation. In all respects the treatment is the same as for general tetanus; we, however, seldom use the galvanic cautery, or hot bath, or packs.

Other Methods of Treatment sometimes used, but with poor success, as inhalations of nitrite of amyl, calomel, atropia, hypodermically. Nicotine; prolonged application of ice to spine; glonoin, aconite.

SPINAL MYELITIS.

Inflammation of the substance of the spinal cord is a rare affection, usually a segment or portion involved, seldom the entire length.

It may be caused by blows, falls, shocks, concussions or to disease of the vertebræ. Sometimes co-exists with other diseases, and in some cases seems to be dependant on them, as syphilis,, mercury and some fevers.

Symptoms will depend almost entirely upon what part of the cord is implicated. *If the cranial portion* of the cord is affected, there is deep-seated headache; convulsive movements of head and face; inarticulate speech; trismus; difficult deglutition; impeded spasmodic breathing; irregular action of heart; paralysis. If about to prove fatal in the acute stage, great prostration; greater difficulty of breathing; involuntary excretions. When the entire thickness of the cord above the phrenic nerve is affected, death takes place rapidly from cessation of respiratory movements. *If the cervical portion* suffer inflammation, difficulty in swallowing and breathing; impossibility of raising the head, pain in back of neck; sense of pricking and formication in arms and hands; paralysis of upper extremities. *If the dorsal*, pain over the affected part, numbness or pricking sensations in fingers and toes; paralysis of arms and lower extremities, with great difficulty of breathing and palpitation. If the lumbar, marked paralysis of lower extremities, at an early period, abdominal pain, and a sensation as if there were a cord tight around the body, convulsions with retention, followed by incontinence of urine, owing to paralysis of bladder, involuntary stools followed by paralysis of sphincter ani. Pain in whatever part is increased by heat, pressure or movement. The loss of power in lower limbs and body below the seat of inflammation, and later, of sensation.

In the treatment, the cause must be removed if possible; if the disease is due to syphilis or mercury, iodide potass. Locally, galvanic cauterly, followed with poultices of belladonna. Control fever with aconite, veratrum and belladonna internally, any convulsive movements with comp. lobelia and bromide of potass. In all cases due attention to bowels and bladder otherwise, general treatment.

If we are even able to tide the patient over an acute attack into chronic myelitis; we may even then meet with success.

Chronic Inflammation of spinal cord may be a sequel of an acute attack, or it may arise from the same causes, or it may occur in persons of feeble health, after middle life. Pain or pressure, on movement and on the application of a hot sponge or the pole of a galvanic battery, aching in the back and limbs

and gradual loss of power of lower extremities. Symptoms most marked in the morning, the congestion being favored by the recumbent posture.

Chronic inflammation may terminate in thickening and softening with atrophic degeneration.

Then in addition to the above symptoms, there will be numbness, and coldness and loss of sensation, as well as motion. If the anterior columns only are affected, motor paralysis prevails; if the posterior columns, sensibility is impaired or destroyed.

Recovery from spinal softening is very rare, and only to be attained by rigid and thorough treatment and promoting the general health. If decided paralysis be present with involuntary urination and defecation, with a copious deposit of phosphates and chlorides, the case is most unfavorable. The treatment embraces attention to *diet*, to consist of an excess of that which is termed phosphatic, oatmeal mush or cake, boiled fish, wheaten grits, corn-cake; otherwise generous and varied animal food, eggs, cream; to the almost continuous application of irritating plaster to both sides of spine; to *baths*, alkaline and medicated, with friction, shampooing, electricity; to an *erect posture*, and to alteratives and tonics: such alteratives as ozonized compound syrup phytolacca, ozonized glycerine, iodine, bromine, etc., and such tonics as ozone-water, cinchona, nux, rhus.

SPINAL MENINGITIS.

Inflammation of the membranes of the spinal cord is not very common, as the cord is well protected from all external violence, as shocks, concussions, mechanical violence, exposure to wet or cold in rheumatic subjects; nevertheless, these causes often produce it. Such poisons as strychnine, if carelessly administered, are productive of it. When vital force is very low, as we often see in crowded abodes or among the inmates of our so-called benevolent institutions, where diet is meagre or unfit for human food, we have a degradation of normal living matter into a disease-germ, the *oidium albicans*, which instead of localizing itself on mucous membrane as in diphtheria, selects as a location or abode the highly organized structure of the living membrane or covering of the cerebro-spinal axis, producing what is termed epidemic cerebro-spinal meningitis or spotted fever.

Symptoms are the same as cerebro-spinal meningitis if high up. Generally they consist of a rigor or a fever, acute burning, or often sharp lancinating pain along the spine extending to the limbs, aggravated by pressure and movement, resembling rheumatism. If high up, there is opisthotonos; head thrown back with rigidity of the muscles of the neck and back; feeble-

ness of limbs, often paralysis and loss of power increases as the case progresses; sensation of suffocation; feeling of constriction in neck, back or abdomen; if lower down, retention of urine, constipation, priapism; great prostration; if morbid action proceed; delirium, coma, death.

A large number of our fevers, when occurring among the broken-down part of humanity, terminate fatally in spinal meningitis. The proper treatment should consist in the free use of the galvanic cautery to both sides of spine, above and below affected part, followed with hot poultices of flaxseed meal and glycerine. General treatment for fever, aconite and veratrum viride, free action of bowels, attention to bladder; bathing thrice daily, heat to feet, tepid water to head; large doses of tincture of calabar bean and bromide of potassa, same as in *Tetanus*. If there is spasm or contraction of muscles, a free use of equal parts of lobelia, capsicum and valerian. Nutrition above all things to be seen to; juice of raw meat, eggs, milk. If it exhibits the form due to a disease-germ, antiseptics, same as in *Typhoid Fever*, carbolic acid and tincture of iodine, ozone-water.

SPINAL HÆMORRHAGE.

Effusion of blood into the cord may take place at any part, and in a small or great degree, either in its substance or from its membranes. It may be a result of active inflammation or of concussions, blows, falls, over-exertion, degeneration of coats of blood-vessels, caries of the vertebræ.

The Symptoms will vary according to the seat of lesion. Acute and sudden pain in back, sometimes in head; often severe convulsions; difficult breathing if high up, with heart's action depressed, with pale and cold skin; if not high up, consciousness not impaired, the spasm then being confined to limbs. Effusion into substance of cord produces paralysis in all parts supplied with nerves coming off below its seat. If hæmorrhage be very slight, loss of power occurs slowly. If effusion is suspected, a further amount is to be checked by perfect repose and application of ice in an intestine along the spinal column. Subsequently, the galvanic cautery followed by poultices, the faces of which are covered with aconite and belladonna liniment. Large doses of bromide of potassa and calabar bean with general alteratives and tonics, guarding all points very carefully.

SPINAL TUMORS OR INDURATIONS.

Irritation of all kinds, falls, blows, strains, lifts, anything we can imagine that would weaken any portion of the cord or its membranes, may permit of effusion of lymph which produces

thickening, or if the blood of the patient is highly loaded with the germs of the tubercle, cancer, syphilis, rabies, they may form a nidus or seat of deposit, and grow and multiply, giving rise to a nodule of tubercle, an exostosis of syphilis, a cancerous infiltration, and may thus, by causing pressure or producing atrophy, cause paralysis.

Symptoms come on slowly but progressively. Paralysis of motion precedes that of sensation, often not very decided till growth or infiltration is some size. Apt to be pain over seat of induration, cramps and convulsive movements of the extremities. Nature of tumor or thickening is to be inferred from the history of case and diathesis of patient.

Treatment.—General health to be well cared for; nutritious brain diet; bathing with frictions and inunctions of oil into paralyzed limbs; attention to secretions. Persistent use of alteratives and tonics, iodide potassa, tincture iodine, iodide of starch and lime, with vegetable alteratives, as *phytolacca* compound, and such tonics as quinine, mineral acids, occasionally ergot; bitter tonics, as *kurchicine*, gentian, and above all things the unremitting application of a two-inch wide strip irritating plaster on both sides of the spine, changed every morning; keeping up a free, copious discharge of pus. Firm, determined perseverance will often get rid of the difficulty.

SPINAL IRRITATION.

The medulla oblongata is, properly speaking, the seat of reflex action; but all nerves originating in both brain and spinal cord have, as it were, a common connection more or less with the medulla, the bulb of which seems to be the common source or fountain of nerve supply, the spinal cord being but its prolongation, not so highly organized as the medulla but nevertheless a reflex center from bulb to sacrum. The theory upon which spinal irritation is based is, that all irritations of any organ are transmitted to the root or origin of the nerve or nerves that supply it; in other words, the same kind or intensity of irritation exists at the nerve that exists in its periphery or terminal end in the affected organ; that when the disease of the organ is removed it is still necessary to wipe out the irritation at the root of the nerve in the cord, else a recurrence is to be expected.

The Cause is any irritation in chest or abdomen or extremities, but especially the viscera in the abdomen with its complex genito-urinary system. The disease is most frequently met with in women and in young men addicted to masturbation, although quite common in chronic disease generally.

Symptoms.—There is pain localized in some part of the spinal cord which can easily be detected by pressure, movement, or

by a cloth wrung out of hot water hurriedly rubbed down the spine, or the sponge of an electrode when current is running. This may be complicated with neuralgia or spasmodic affection involving the organs supplied with spinal nerves. If the irritation is on the dorsal portion it is generally referred to one side, frequently the left, and is only felt below the mammae, often complained of as a constriction or tightness or suffocation, with accelerated action of the heart, with spasmodic cough. If the irritation is in the lumbar, there will be spasmodic action of the viscera; numbness, cramps and excessive tenderness, with impaired motion and sensation in the lower extremities, with constipation, retention of urine, irritable bladder and uterus, with disturbed menstruation.

It is not common in the cervical portion, still if it took place there it would give rise to neuralgic pains in the neck and face, difficulty of swallowing, loss or impairment of voice and affection of speech, cough and altered sensibility; partial paralysis; coldness and numbness of both hands or a pricking sensation. In addition to these local symptoms the patient assumes or acquires a strong nervous temperament; suffers from a good deal of nervous prostration, headache, dyspepsia, etc.

In the treatment, attention to the bowels, bladder and skin; daily bathing followed by brisk friction; moderate exercise in open air if strength permits, and when not exercising rest in the recumbent posture; tonics to strengthen stomach and improve appetite. Diet to be generous and rich in brain elements. The cause must be removed and any blood affection seen to. Then the special treatment for the relief of the irritation resorted to. This will embrace local stimulation in some form. The best is probably a two-inch strip of irritating plaster on both sides of spine, spread fresh every morning and applied continuously if possible; if not, as much as can possibly be endured. If this is not to be tolerated, then daily frictions or inunctions with some of the following liniments:

Olive oil, two ounces; chloroform, one ounce; alcohol, one ounce and a half; thymol or menthol, one ounce.—Mix. Or, equal parts of tincture of aconite, belladonna, chloroform and aqua-ammonia. If there is some objection to this, then use of the acupuncturator along both sides of the spine, in no case deep enough to draw blood, every other day followed with oil of mustard and chloroform, which has a most salutary action. The electrical brush for a half an hour each alternate day also operates well. One or other of these methods must be commenced and carried vigorously out.

As long as pain exists, the bromide and iodide of potassa with carbonate of ammonia, with tincture of calabar bean should be given in such doses as will do some service. Then a general

alterative and tonic course of treatment bearing on the cause of the complaint. In spinal irritation we have an immense range of remedies that act well in causing a renewal of life in the cord.

Among our best alteratives are ozonized glycerine, iodide and bromide in compound syrup of caulophyllin. Among tonics, phosphate of quinine, ozone-water, aconite, belladonna, ergot, mineral acids, calabar bean.

CHOREA.

This disease is recognized by a want of control of the muscular nerves over the motor, in the waking state, which gives rise to irregular, tremulous, and ludicrous movements of the voluntary muscles. It occurs for the most part in girls of feeble constitution; of an irritable, nervous temperament, between the ages of five and fifteen. It is met with more rarely in boys.

Causes.—It is supposed to originate in a jar, or want of harmony between the gray and white matter of the spinal cord, probably brought about by falls, blows, shocks of various kinds acting upon a weakened cord and bulb. More active, exciting causes are anæmia and other blood diseases; teething, worms, dyspepsia, skin eruptions, retarded catamenia, constipation, cold, insufficient food, excessive loss of blood, pregnancy, disease of bladder, rectum, mental emotion, passion, masturbation, and other reflex conditions.

Symptoms.—The commencement of this disease is characterized by nervous depression and debility. The involuntary motions begin by slight twitching of the muscles of the face; then other muscles become affected, and one or more limbs; features often curiously contorted and twisted; vacancy of countenance; articulation impeded; appetite irregular, often constipation; generally one-half of the body more affected than the other. Irregular action ceases during sleep. The disease may last for a lifetime and produce no bad results, whereas in other cases the nervous system becomes impaired and there is a rapid breaking down. It produces difficulty of respiration and retards the functions of the heart. It is apt to be attended with danger.

Treatment.—In the treatment of all cases of chorea, a complete change of habits and occupation, and a resort to the fresh air of the country; abundance of exercise, and a very generous diet, together with daily baths and friction to skin, are indispensable. The closest scrutiny of the case, as to whether there be any blood affection, or reflex irritation, especially of the genito-urinary organs. All causes must be removed, if possible, and a special treatment inculcated for each; the secretions

well stimulated. The great impressibility of the nerve-centres must be seen to by the daily application of stimulants to each side of the spinal cord, as friction with stimulating liniments, or acupuncturators, the irritating plaster, ice, or use of menthol; some one of these selected, and, internally, bromide, calabar bean, sumbul. These latter not only relieve the impressibility of the cord to reflex action, but help to control the involuntary movements:

Camphor-water, four ounces; bromide potassa, one ounce; carbonate ammonia, half an ounce; tincture calabar bean, one ounce.—Mix. From a half to one teaspoonful every three hours.

If retarded menstruation be the cause, in addition use compound betin and acetated tincture of iron.

If worms, the usual remedies.

If fright, terror, mental distress, stramonium, belladonna, macrotys, nux vomica.

If uterine irritation, macrotys, viburnum, Indian hemp.

If rheumatism, colchicum, phosphate of quinine, salicylate soda, iodide potassa.

If due to blood-poison, or disease-germs, special treatment, according to cause. Other remedies sometimes successful, as sulphate of analine, nitroglycerine.

ANÆMIA OF THE BRAIN, SPINAL CORD, GANGLIONIC SYSTEM AND GREAT SYMPATHETIC.

The term anæmia, meaning bloodless, or want of nutrition, is often applied to tissues or organs when their vitality is impaired, irrespective of any disease of the blood, such as anæmia of a nerve in neuralgia, a starved heart in rheumatism and gout; atrophy of a muscle, owing to an insufficient blood supply; anæmia of the uterus, etc. In cerebral anæmia the quantity of blood in the brain is reduced below the natural standard, or the quality of the circulating fluid is impoverished. In either case the nutrition of the organ is interfered with. In the one case there may be a loss of blood, or the blood cannot permeate the nerve-centres, or there may be a lack of blood formation. Insufficient nutrition is the cause of anæmia of the brain, spinal cord and sympathetic, and this may be brought about by worry or struggle for existence, or it may be due to insomnia, to sameness, monotony, isolation, or to irritation reflected, to diseases within the body, or to disorders of digestion or assimilation interfering with nutrition. It is well known that under a condition of worry, sorrow, grief or other depressing passion, the blood becomes poor in quantity and quality from deficient nerve supply, and is unfit to nourish the brain, and the great centres suffer from the shock incidental thereto as well as from poor blood, and with it the whole body suffers.

In cerebral anæmia from impoverished nutrition, there is not only a decrease in the red corpuscles of the blood, but the power of the heart and blood-vessels is lowered; there is a deficiency of the functional energy of all organs, due to a want of blood and innervation; strength of will, vigor of intellect and the vital capacity of execution and determination are impaired, and the individual is capable of no effort. The mental inertia or depression is generally accompanied with lassitude and a feeling of utter incapacity for muscular and mental exertion of any kind.

The causes of anæmia of the nerve-centres are very varied, and embrace to a certain extent a long list of diseases, such as concussions, the action of the sun, chronic inflammation, softening; the action of whisky, opium, chloral, tobacco; mania, monomania, dementia, melancholia, nervous dyspepsia, hysteria, epilepsy, catalepsy, ecstacy, somnambulism, paralysis, convulsions, headaches, etc., in addition to worry, tire, exhaustion, study, mental strain incessant; masturbation, sexual excesses, deteriorating influences of civilization, over-stimulating the nerve power; defective assimilation of brain elements, improper reading, deleterious trades; solitariness or sameness, which wipe out the typical fissures of the brain and thus lowers its quality; too early an education, which causes a defective power of assimilation in the brain, protracted inhalation of air deficient in oxygen, whereby the centres are not vitalized. Nerve tire; to which may be added civilization, refinement, culture, which create new and abnormal responsibilities, new anxieties, every one of which brings on additional mental strain. The mind of highly civilized man is ever on the alert. The brain has no rest; nutrition of other tissues is diverted to repair the waste of nerve-tissue, and sooner or later inevitably comes the anæmia or exhaustion. It is undeniable that anæmia of nerve-centres increases with civilization, and that diseases of the brain, spinal cord and ganglionic nerves are alarmingly on the increase.

Among the most prominent of these causes is worry, struggle, real or imaginary; this gives rise to a grave loss of nervous energy and anæmia of nerve-centres. *By it* the united brain, in tone, strength, capacity is seriously impaired; *by its* wearying, gnawing, exhausting influence, the organ is devitalized and irretrievably suffers; *by it* the whole machinery is thrown out of gear, and exercise, recreation and amusement become painful and destructive. The victim of worry is on a precipice; if he escapes, it is something providential. Worry is disorder, and nature abhors it. The energy employed in any pursuit under a state of worry gives a small result and speedily becomes exhausted. Under it the faculty of recuperation is arrested; the failure of the appetite soon takes place and the effort to work is laborious;

the task of fixing the attention grows increasingly more difficult; thoughts wander; memory fails; reason becomes feeble; prejudice takes the place of judgment; brain disturbance very apt to supervene and a crash is likely to follow, with mental disquietude and distraction.

Next to worry we have mental strain, incessant attention for hours in bank officers, railroad employees, merchants, etc. No one who has any practical acquaintance with the human brain can fail to recognize the fatuity of a policy which entrusts the safety of their lives and fortunes to the integrity and precision of the mental function performed by one brain, continuously engaged for several hours in succession—the keeping of the brain on the stretch for long intervals; the sustained attention of onerous duties weakens its integrity and it becomes anæmic. In the nature of things, physical memory fails; mind wanders; and if it were not for habit, the task probably could not be performed. The higher cerebral centres are relieved by the strain put upon them by delegating their power to the lower automatic centres; but if with this relief the tension is excessive, and the way in which the case is purchased by habit, is in itself a source of peril. Acts that do not call the reasoning power into operation and form a judgment; acts that are merely routine or habitual, are dangerous. It is critical for man's brain to work automatically or by habit; it leads to anæmia.

In anæmia of the nerve-centres produced by over-study, there is usually irritability and excitability of manner and an utter impossibility of concentration. When intellectual exertion, if monotonous, be carried on beyond a certain point, the brain becomes fatigued and anæmic, and the nutrition in the ganglionic cells of the cortex become impaired, diseased, altered from health; then headache becomes not an infrequent concomitant of the case, and indicates a still more advanced condition of an irritable and exhausted brain. Headache is indicative of cerebral debility, whichever of its two great factors be present, anæmia or congestion. A great deal of the present amount of anæmia of the nerve-centres is due to brain starvation, as well as over-work, worry and strain. It is simply preposterous for a nation of brain-workers to live on vegetables and starch. Our present diet is poor in phosphates. A brain-worker should eat freely of corn-bread, oatmeal in some form, and boiled white fish, which are true brain and nerve food. If no deleterious compound is introduced into them they give or afford pabulum for lost nervous energy; they relieve lassitude, refresh the nerves when tired by any drain, strengthen the failing memory and give renewed vigor in nerve-tire.

Cerebral starvation is also brought about by adulteration of food, as the use of baking-powders, which destroy the phosphates

in flour, corn, buckwheat, and the introduction of diabolical, disease-generating food, as pork, oleomargarine, glucose, which should certainly be prohibited by rigid laws. This insufficiency of brain elements in food tells dreadfully upon the offspring in the production of infantile brain anemia, and it is doubtful whether it is not of more importance in whittling down the nervous system to the very lowest ebb than over-stimulating diet, tobacco, literature and other assigned causes. Under the absurd name of hysteria we find a large percentage of anemia of nerve-centres in ladies. This is due to a variety of causes, such as their extreme susceptibility to impressions, to their indoor life, monotony or sameness, sedentary habits, which necessarily gives rise to a deficient aeration of blood, a deviation from a natural type, and causes a marked characteristic, which condition is aggravated by literature and surroundings. All morbid states of the body directly or indirectly tend to produce brain anemia. This is explained by reflex action. Masturbation is a dual cause, a direct drain and irritation superadded.

Symptoms.—To lay down a train of symptoms is impossible; there might be forgetfulness, loss of memory, nervous debility, indifference to the world, white face, dilated pupil, nerve-tire or irrepressible languor, sleeplessness, irritability, heats and colds, burning in the hands and feet, vertigo, noises in the ears, specks and spots before the eyes, phosphates and chlorides in the urine, abnormal sensations in skin, seminal weakness and loss of power of the generative organs, or, in other words, no definite symptoms can be laid down, depending a great deal on the so-called disease present, or that develops itself. Hypochondriacs, cranks, nervous dyspeptics, confirmed invalids of all sorts, widely scattered over the entire country, paralytics, monomaniacs, hysterical subjects, bed-ridden, sleepless, helpless victims, the result of abuse and erroneous treatment, worn and wasted, a burden to themselves and their families; subjects who may or may not suffer from some local disorder, if none, the exhaustion, prostration, difficulty of progression, and general nervous disturbance incident to the anemia will be paramount. As a general rule, whatever the phase in which it presents itself, there is wasting of the fatty and muscular tissues combined with the anemia; the patient having lost all healthy appetite and power of digestion and assimilation, there being scarcely enough eaten to keep vitality alive. Patients suffering from cerebral anemia, whether it be the monomaniac, hypochondriac, hysteric or dyspeptic type, have their sympathetic system highly excited and are highly emotional, constantly craving pity, sympathy, which they usually obtain to a degree prejudicial to their welfare, and monopolize it until the entire household and neighbors become victims to their morbid selfishness. One doctor is tried

and another, one cure, water-cure or spring, and even different sections of the country are utilized with no good.

Treatment.—In cerebral anemia our usual medical treatment is almost useless, and this very fact necessitates a complete change of procedure, a change that involves not only great expense but considerable inconvenience, as it involves the removal of the patients from the unwholesome moral atmosphere in which they have been living, away from sympathizing friends and neighbors; by a renewal of the patient's vitality by baths, brain food, and other nutrition, and causing its assimilation by positive muscular exercise; by resorting to peripheral stimulation, thus stimulating the reflex centres, causing an increased cutaneous circulation, and thus improving nutrition. The treatment is physiological, and up to the latest discoveries in medicine, and involves the following heads:—

1. *Seclusion and Rest.*—This is absolutely indispensable to carry out the entire treatment in its most minute detail; the entire seclusion of the patients under a competent nurse, and their removal from old scenes, associations, and the morbid atmosphere of invalid habits which encircles them. Unless the patient is entirely removed from the injudicious sympathy and constant waiting on of friends, it is impossible to obtain the necessary control over them which is requisite for a cure. This point is to be made absolute; sever the connection between them even if it seems harsh and strange; no compromise on this point can be made, and if it is impossible to secure the removal, the isolation and perfect seclusion of the patient, better to have nothing to do with the case and its peculiar treatment, for even if they are isolated in a separate room in the same house under a competent nurse and visited by no one but the medical attendant, the case does not do so well as when apart.

There should then be a perfect separation from all moral and physical surroundings; the change is beneficial, and aids immensely in the cure. Following this is rest in bed, absolute repose, no reading, talking, looking at pictures, no sewing or knitting, not even allowed to feed themselves for at least six or eight weeks. Under this condition of rest the whole system becomes regenerated, and new tissues begin to form; it acts like a brain or nerve food; it restores lost energy, refreshes the nerves tired by worry, excitement or strain, and gives renewed vigor to the whole body. After this condition of absolute repose has existed for six or eight weeks, it may be broke or lessened, and then the patient be permitted to sit up several hours daily, and gradually this is to be extended. The old diseased habits are to be discarded and a new life to be inaugurated while the above is being faithfully carried out; the essential part of the treatment is also being fulfilled in the form of—

Massage.—Simultaneously with the condition of seclusion and rest being commenced, this, the really indispensable part of the treatment, should also be inaugurated: the entire surface of the body of the patient morning and evening to be thoroughly sponged off with castile soap and water, and well dried by the nurse, and thus made ready for the massage. This is to be performed by a young, healthy, vigorous person, full of vital force, intelligent, and well posted in his or her work. Massage should be commenced the first day, half an hour in the morning, and same length of time in the afternoon, the duration of time increased daily, until two and a half hours are thus occupied morning and evening, making five hours altogether daily, and after its performance each time, one-half or three-quarters of an hour of electrical manipulation to follow. This massage is to consist in taking a leg and thigh, beginning at the toes, foot, leg up to groin, first rubbing from the extremity up; then grasping the parts between both hands, from foot up, moving each joint as you go along; then a careful, pains-taking kneading from the sole of the foot up, manipulating the joints well; this is to be followed by beating or patting with the fingers of both hands coming down on the part at the same time, and the whole to be followed by a rubbing with the points of the fingers, always moving the joints. After one limb has been well done, then the other; then one arm, then the other; the back, and latterly the abdomen, spending upon each a little over half an hour. If there is great sensitiveness, it is often best not to spend the entire time on one member at once, but to go from one to the other, going over each several times. The intensity of massage will depend altogether on the sensibility of the patient. In no cases is there any violence or roughness to be used; neither is the skin to be irritated nor much redness induced. During this manipulation, the patient is to remain perfectly passive—not to make a single effort; all to be done by the operator. This systematic shampooing, grasping, kneading, patting, beating and exercise of all the muscles and nerves of the body, extremities and trunk, has a magical effect. Its advantages are, the peripheral nerve stimulation carried to brain, cord and other centres, raising the standard of central vitality, the vital force or stamina of the operator is planted into the nervous system of the patient by reflex emanation; all his reserve vitality accumulated are thus given to the devitalized. Nerve action in all cases is vibratile; in anæmia of brain an abnormal series of nerve vibrations are set up. This is at once changed by massage, which restores the healthy, mechanical vibrations to the nerve; carrying the same state of vitality to the centres, it thus relieves wandering, erratic pains and neuralgia, strength-

ens the nerve centres, and gives renewed vigor in all diseases of nervous exhaustion or debility; it stimulates the cutaneous circulation, the muscles are exercised without the expenditure of nerve force; the reflex stimulus carried to the medulla oblongata gives greatly improved vitality, and the psychological condition of the manipulator, as well as his vitality, is implanted in the patient. To do it effectually, requires a well-educated person, of fine mind, strong will, solid determination, sound vigor, and of high vitality. The party who does the massage should have nothing else to do but walk around, eat well, and acquire all the vitality possible, so as to communicate it to the patient. The regular nurse, tired and wearied with his peculiar avocation, should never be permitted to perform the massage. There is to be no oleaginous body used by the operator, as that destroys or breaks the vivifying current.

After the first application the patient will feel sore and stiff, but this will soon wear off in a few days. Although we inculcate gentleness, still it must be efficient; this feeling of soreness will soon pass off, when the patient will enjoy the manipulation amazingly, and after it is performed will have a pleasant sense of exhaustion followed by refreshing sleep.

Electricity.—This should follow the massage, and is to be used simply as a means of exercising the muscles. The interrupted current should be employed twice daily, from half an hour to three-quarters of an hour. The poles armed with wet sponges squeezed out of salt water, so as to carry the electricity away down into deep parts, are to be placed on the muscles to be operated on in turn, beginning at the leg and going up, taking each muscle in turn. The sponges with the poles should be placed four inches apart and moved slowly up and down the muscle until it contracts fully and freely. This is somewhat painful and annoying, but it is of unquestioned utility in long-standing cases of cerebral anæmia, especially where there is wasting or muscular paralysis. It is not to be used about the neck or head, and it should never be rubbed about indiscriminately, but simply applied to the muscles.

Regimen and Diet.—These form an important and essential part of the cure. All this class of patients are but living skeletons, skin and bone; white, anæmic, wasted, emaciated, neither able to sleep or walk; suffering a living death, mocked at by ignorant physicians who are too superficial to understand their case. And it is perfectly astonishing to see how the treatment tends to recuperate and rejuvenate them. Once the patient is secluded, it is well to cleanse out the bowels and begin with a milk diet exclusively for a few days. This should be given every two hours in sufficient quantities, which they are able to

consume and perfectly assimilate, usually from three to four ounces. After two days of the massage, the amount can be increased to eight or ten ounces, so that within the twenty-four hours from two to three quarts of milk will be consumed. There is no difficulty in getting rid of that quantity even if there is dyspeptic symptoms, for they disappear like magic, and flesh, strength and increased weight are visible to the eye from day to day. As soon as the manipulator reaches five hours of massage and an hour and a half electricity daily, one-half in the morning and the other half in the afternoon, then the diet is to be increased by the following additions, which are greedily taken, thoroughly digested and assimilated into brain, muscle and other tissues. The following schedule will give an imperfect idea of the diet list or something near it:

Every evening during the treatment there should be made beef tea, say a pound and a half of fine lean meat, chopped fine and water sufficient to obtain ten ounces; this should stand over night so as to be ready for use at five a. m., when, after the patient is sponged off, a portion of it should be taken with a soda-cracker. This meat extract should be seasoned to suit the taste, and parsley, if in season, added to it.

At five a. m., beef extract with cracker, to be followed with two and a half hours massage and half an hour electricity; to be followed with a bowl of oatmeal porridge and cream.

At nine o'clock, a. m., breakfast, consisting of toast and butter, soft boiled eggs, corn bread, broiled beef-steak and coffee.

At eleven a. m., milk.

At one p. m., dinner, consisting of boiled white-fish, chicken, mutton chop, broiled beef-steak, vegetables, fruit and cream.

At three p. m., milk, to be followed with massage and electricity for three hours; to be followed with beef extract, fish, biscuit or milk.

In other words, a system of feeding consisting of brain elements, and that to excess.

In this treatment, which is so successful, the massage is the dominant agent, and the question is, how does it work? The vital stimulus of the rubbing, patting, kneading, shampooing, is imparted to the superficial nerves. This passes along the nerve tubes by means of the pulp to the gray matter of the spinal cord, where, by the influence of the ganglion through which it runs, the supply of blood to the nerve cell is regulated. In the cell of the gray matter of the cord a vital electrical condition is established which travels along the spinal cord to the brain, which is toned up and receives more blood. Every rub, every vibratory thrill gives a myriad of tonic phenomena, which causes the anæmic capillaries to become filled with blood rich with brain elements, and a renewal of life in the weakened

tissue promoted. This treatment, simple as it looks, needs the supervision of a medical attendant of great skill. The time necessary to accomplish a cure is usually about twelve weeks, unless in old cases of paralysis, which may require a longer period.

Is this treatment reliable? Assuredly it is. Not only reliable, but endorsed by the highest medical authorities, and thousands of hopeless cases of disease have been cured by it. It is no experiment. The nervous system is the controlling agency by which development is perfected, and the animal magnetism of the operator is the mysterious force that rouses it into action. No drug, no remedy but this can quicken the benumbed and paralyzed limb or faculty like the invigorating stimulus of intellectual animal magnetism. There is an affinity in all cases of debility to absorb or draw from the stronger around, to imbibe their nerve vigor and thus rouse their own dormant activities. The system of cure as laid down above comes right in among a class of diseases in which all remedies fail. For there is no drug or mechanical contrivance that can induce a healthy vibratory action of the nerves with living, thinking matter, and bring a new power to the deadened nerve forces but this.

The disorders of the sympathetic or of the great sympathetic ganglionic system, which in the white man is so profusely reflected to the face, lungs, heart, spleen, liver and genito-urinary organs of both sexes, in which the moral nature of man, emotions, desires, affections and passions reside, or what some term his visceral brain or soul, have not as yet been elucidated, and therefore not classified. The immense amount of rich gray matter in the sympathetic ganglia and its connection with the organs of animal life, with the united process of nutrition, blood formation and reproduction, exercise an immense influence on the circulation through the medium of the sympathetic, by which the neuric manipulations are produced, and any deviation from health in any of the organs of chest and abdomen leads to anæmia of cord and brain, especially so if the complex generative system is affected. It may be called reflex irritation, or irritation carried along the sentient gray matter to the cells of the cord, which in time wears them out and the influence of repeated or abnormal vibrations exhaust completely the central cells and the non-vital condition is established, with the weakening and disturbance of the electrical condition of the cord and brain. The superiority of the gray cell of the sympathetic, its intrinsic sentient matter is apparent, its growth and development in man being coeval with his moral responsibility; and when any organ it freely covers is affected, as the uterus, the penis, the left kidney, spleen, mesentery, heart and lungs, then rapid changes do occur on the supervention of the

irritation. In such cases we see the rosy hue of the cheeks becoming pale; the graceful gambols of the child giving way to the distortions of chorea; we hear the sad gurglings of the epileptic, or the fierce ravings of mania, or the moanings of melancholia. Once the affections of the sympathetic are classified, we will be better able to treat the diseased manifestations of those organs under ganglionic control.

PARALYSIS.

A partial or total loss of sensibility, or of motion, or of both, in a part or of the entire body. It is said to be perfect when both motion and sensibility are affected; imperfect when one or other is lost or diminished. The term local is used when a small part of the body is affected, as a limb or hand. It is termed reflex when it commences in the periphery of a nerve, and is reflected to its origin in the cord, and from thence reflected back to the muscles. There are, besides, some peculiar forms in which certain symptoms predominate, as wasting of muscles, tremor, etc. Paralysis is predisposed to by either a condition of *congestion* or *anæmia* of brain, spinal cord or spinal nerve—a *de vitalized condition*; and either of those two states may be associated with an exciting cause, as apoplexy, embolism or thrombosis, abscess, softening, induration, tubercular, cancerous, or syphilitic deposit, tremors disease of urinary organs, intestines, uterus, epilepsy, chorea, masturbation, disease of the spinal cord, as inflammation and its results, disease of the membranes of the cord or brain, lesions or compressions by which its working power or its conducting medium is impaired; some blood disease, as rheumatism or gout acting on weakened nerve tissue, and to the direct influence of such poisons as lead, mercury, nitrate of silver, bismuth, etc.

The term, or rather the condition of general paralysis cannot well exist without death, although we occasionally meet with cases in which both sensibility and motion are not wholly destroyed, but nearly so.

Hemiplegia.—Paralysis of one-half of the body, extending from the crown of the head clean down through the median line, involving the arm and leg, one side of face, tongue. It is the most common form, and usually spoken of as a paralytic stroke or attack. The left side is more frequently affected than the right side, and the arm somewhat more than the leg. Occasionally we meet with cases of transverse or crossed paralysis, due to accidental conditions—the causes either due to congestion or anæmia. Under the former, we must look carefully for apoplexy, clot, tumor, nodule of tubercle, cancer, etc.; under the latter for chronic inflammation, white softening, epilepsy, chorea, blood poisons, etc. A distinction

or true line of demarcation is important as leading to correct treatment. Cases due to *congestion* are accompanied with headache and other symptoms of plethora, and are sudden in their seizure, whereas those due to *anæmia* exhibited such symptoms in the white face, nervous temperament, etc., and come on slowly and insidiously.

Symptoms.—In both are the same; muscles of the side of the face and brow affected; paralyzed cheek drops loosely; mouth is drawn to one side by non-contraction of paralyzed muscles; tongue usually implicated; when protruded, point turned to the paralyzed side, owing to the vigorous action of the healthy muscles; articulation is imperfect. Third nerve not involved in the common form of hemiplegia, but temporary lateral deviation of both eyes, and persistent turning of the head to the sound side in severe cases. As the hemiplegia is either due to the effects of congestion or *anæmia*, the pathological result usually takes place at the base of the brain of the right side, or on the side opposite from the one paralyzed, so the condition of the eye, as to contraction or dilatation of pupil, closed or staring open, will depend on the location of the difficulty. The arm is always more paralyzed than the leg, and recovers more slowly. Paralyzed limbs are soft, flabby; in rare cases, rigid. The muscles of the chest and abdomen may not be affected chiefly in sensation, if at all. The mental faculties are less or more damaged—reason, judgment, memory, a tendency to shed tears. In effusion of blood from congestion, muscles often rigid or contracted; in *anæmia*, with white softening, the softening or degeneration descends the cord from want of nutrition, and the muscles waste or shrink away. Where muscles waste, case is hopeless. When the leg regains power first, the case is very hopeful; whereas, if the arm before the leg, always unfavorable.

Treatment.—In all cases, whether due to congestion or *anæmia*, the following is to be recommended: Secretions from liver, kidneys, bowels to be promoted; skin to be daily bathed with alkaline washes; feet to be kept warm by capsicum; head cool; sleep to be prolonged to nine or ten hours by extract of hyosciamus; the efficacy of repeated blisters, say for six hours at a time, three times per week, or the irritating plaster constantly exciting free suppuration to both sides of the spine below nape of neck can never be doubted. The most satisfactory results are to be obtained from this proceeding. We need not ignore the fact that at least two-thirds of all cases are due either directly or indirectly to the syphilitic germ in the blood irritating a weakened patch of brain, and thus causing the paralysis. If satisfied that it is due to congestion, cerebral hæmorrhage, effusion, active cupping to neck and shoulders,

free action of bowels, and a persistent perseverance in alteratives and tonics, with iodide of potassa; the idea being, if possible, to procure absorption. If due to anæmia, or softening, then no cups nor free purgation, but a treatment highly constructive, rich diet, excess of phosphates; and to rectify the defective nutrition or anæmia, compound hypophosphites of lime, soda, iron in beef extract, ozonized glycerine, ozone-water. Besides, as it is generally chronic, alteratives and tonics should be carefully used all through, among the former compound syrup phytolacca, extract saxifraga ozonized, compound syrup yellow dock, and among the latter, mineral acids, quinine, iron.

If the copper-colored roof of mouth, or nocturnal languor, or more prominent symptoms point to syphilis, call for no history, but treat it with iodide of potass, ozonized glycerine, comp. syr. phytolacca ozonized, nitric acid in comp. tinct. cinchona, and the blisters to draw the germ of syphilis from its feeding ground at base of brain.

The largest percentage of cases of this form of paralysis are syphilitic, and overlooked by the physician, either through his ignorance or delicacy in announcing the fact. Frictions, shampooing, palpation with olive oil or other stimulating liniments, and faradisation if there is no tendency to spasm or muscular rigidity or massage.

Paraplegia.—Paralysis of the lower half of the body. There are two forms, one due to congestion, the other to anæmia or or want of nutrition; the former may be caused by falls, mechanical violence, causing spinal meningitis, myelitis, with effusion of blood or lymph on the membranes or substance of cord, causing a thickening, tumour, tubercular, cancerous, or syphilitic deposit; the latter, defective nutrition, caused by masturbation, sexual excesses, disease of kidneys, uterus, and other parts, a condition in which, in its first stage, the reflex impressibility of the cord is increased—due to an insufficient amount of blood in the cord.

Symptoms.—If not due to mechanical violence, it comes on slowly and insidiously, with great weakness, numbness and tingling of the feet and legs. These symptoms increase until there is a total loss of sensibility and motion in lower extremities, paralysis of bladder and sphincter ani follow, decomposition of urine in bladder, involuntary movements of the legs, often very distressing, marked deterioration of general health.

Note special symptoms—if the congestion or pressure or nodule be on the membranes of cord, there is severe pain in limbs or back, especially on movement or coughing, resembling rheumatism, reflex movements sometimes exaggerated, paralysis of sphincters later.

In myelitis, dull pain, sensation as if there were a cord around the body; paraplegia more decided; reflex action in parts below segment attacked; often exaggerated; sphincters early affected.

In the anæmic forms symptoms are less definite; worse on being in recumbent posture. When not due to mechanical irritation or reflex action, as in spinal irritation, often syphilis is the cause, which will be recognized by its concomitant symptoms.

Treatment.—The first point in the consideration of treatment is, is it one of congestion or anæmia? The land-marks must be carefully drawn as to that point.

If there is congestion or inflammation, with increased determination of blood in the cord, there will be symptoms of irritation of motor nerve fibres, as convulsions, cramps, twitching, priapism, with indication of sensitive nerve fibres, as itching, crawling, pricking sensations, heat and cold feeling alternately, and symptoms of irritation of vaso-motor or nutritive nerve fibres, as wasting of muscles, bed sores, alkaline urine. There is also pain corresponding to the upper limit of congestion, tenderness on pressure, or a burning or sore feeling on the application of a hot sponge or pole of battery.

In treating these cases, the quantity of blood sent to the cord must be diminished, and the normal integrity of the cord restored; so that cups, blisters, irritating plaster; better than all, the galvanic cautery on both sides of spine above and below the difficulty, followed with hot poultices or continuous application of irritating plasters on both sides of spine, two inches wide on each side, subsequently belladonna plaster, or some stimulating liniment. Internally, iodide and bromide of potass, with calabar bean; to be alternated with belladonna, ergot, camphor, henbane, conium, Indian hemp, to relieve distress and procure sleep; as case progresses, ozonized glycerine, ozone-water, erythroxylon coca. Skin, liver, bowels, kidneys to be well stimulated, and diet to be generous to a fault, containing as much phosphates as possible. The nutrition of limbs must be maintained by olive oil inunction, friction, shampooing, at least twice or thrice daily, for twenty or thirty minutes.

In the paraplegia due to anæmia or white softening, the point is to cause a determination of blood to the cord and its membranes and restore its vital integrity. Food loaded with phosphates, as animal diet, boiled fish, oatmeal, corn bread, and extract of meat with compound hypophosphite of lime are excellent; acupuncturators applied on both sides of the spine, followed by oil of mustard and capsicum dissolved in alcohol and chloroform, or else the irritating plaster on twelve hours, off twelve hours, are very efficacious in causing a determination of blood to the cord. Besides, quinine, iron, opium, strychnine

and camphor; the latter rarely. The best position is on the back, with limbs drawn up, so as to cause the blood to gravitate into the cord. The nutrition of limbs to be maintained by oil inunctions and stimulating liniments.

Syphilitic Paraplegia.—The general treatment for syphilis must be inculcated. In paraplegia we have a controlling remedy in heat and cold, or their representatives. For example, to dissolve menthol or thymol in equal parts of chloroform and alcohol and paint both sides of the spine; the chloroform carries the menthol away down deep; we have an anæsthetic effect over the circulation in brain, spinal cord and ganglia of the great sympathetic. In this way congestion can be modified; if we add ammonia to the same prescription we can produce local congestion, an increased determination of blood. If the paralysis be due to any reflex cause, as teething, worms, irritability of urinary and sexual system, skin disease, they must, if possible, be removed.

Local Paralysis.—There are many varieties of local paralysis, extending from the head to the foot, and dependent on very varied causes—such as facial; paralysis of the muscles of the eye, supplied by the third nerve; ptosis; immobility of eyeball; outward squint, double vision, dilated pupil. Of external rectus, supplied with sixth nerve, inward squint, &c. Paralysis of fingers and thumb in needle-women; of the supinators and extensors of the forearm and hand in dish-washers; hemiplegia of penis often present in the sensualist.

It is unnecessary to go over all; the point is to ascertain their cause and remove it: If due to congestion, an active counter-irritant and antiphlogistic course; if to anæmia, rest, stimulants, &c.

Nearly all forms of local paralysis about the face are due to syphilitic disease at base of brain: some due to other blood-poisons; others to sameness, overwork, excess. General alteratives and tonics seldom fail to benefit.

Locomotor Ataxia.—An excessive formation of connective tissue, with wasting and disintegration of nerve-fibres of the posterior columns of the dorsal and lumbar portion of the spinal cord, which gives rise to a peculiar form of imperfect paraplegia.

It is supposed to be caused by sexual excesses, the germs of syphilis, tubercle; by the poison of gout, rheumatism, exposure to cold, damp; falls or blows being simply exciting causes.

It is almost invariably met with in males about the middle period of life. In well-marked cases there is atrophy and disintegration of nerve-fibres of posterior roots of spinal cord, with formation of amyloid corpuscles, and great hypertrophy of the connective tissue of the cord. The lesion is not, in all cases,

confined to the posterior columns of the cord. There is often a gray degeneration of cerebral nerves, of spinal nerves, and various lesions of gray structure.

Symptoms.—The characteristic symptom is a diminution or total absence of the power of co-ordinating the movement of the lower limbs, so that the patient has difficulty in walking, loses his balance, and has a peculiar gait; can move limbs, and has considerable power in them when lying down. It is totally distinct in its origin, symptoms and pathology, from paraplegia, in which, either sensibility or motion, one or both, are impaired or lost.

It usually commences with stabbing or darting pains in the limbs; squinting, double vision, or other impairment of sight; occasionally partial paralysis of other cranial nerves beside the optic; mode of walking peculiar, feet lifted up and thrown out in an irregular manner, and brought down violently; turning round is difficult, patient is compelled to watch his legs in order to guide their motions; cannot stand with the eyes shut, or in the dark, and is unable to walk in that condition; no tenderness on examination of spine; a sensation as of pins and needles in lower extremities, with numbness, cramps, or neuralgic pains. Ultimately, loss of sensation in lower limbs; partial or complete amaurosis from atrophy of the optic nerve; increasing debility, so that the patient can not leave his bed. Progress of the disease slow but persistent. Recovery is very rare. The intellectual faculties may remain unaffected till near the end. There is often deafness, and a sensation of constriction or cords round the abdomen. The early eye-symptoms are to be accounted for by the branches of the optic nerve in the medulla and cord suffering the hypertrophy of the connective tissue, with atrophy and degeneration.

Treatment.—The general health should be attended to—baths, frictions, showering the whole body daily; secretions regulated; appetite stimulated with tonics; clothing woollen; a very generous diet, animal food, boiled fish, raw eggs, milk, cream; vegetable phosphates; constant application of irritating plaster to lower portion of spine; persistent use of alteratives and tonics. If due to syphilis, sulphur or ozone baths. The salts of compound hypophosphite of lime to be given daily in extract of beef.

While the patient is diligently pursuing the above treatment there are a number of special remedies to be used or tried, such as phosphate of quinine, calabar bean, ozonized glycerine and water, belladonna, compound tincture cinchona and mineral acids—used as tonics, with the compound syrups of phytolacca, dock, &c., with iodide of potassa. Restlessness allayed and sleep procured by large doses of hyosciamus.

Sclerosis of Lateral Columns of Cord, or excessive formation of connective tissue, with wasting and degeneration of nerve-fibre of lateral columns; invading also the anterior cornua of gray matter.

The symptoms are gradual paralysis of muscles and contraction of limbs; no loss of sensation; the sphincters often unaffected. Treat same as *Locomotor Ataxia*.

Disseminated Sclerosis.—Patches of sclerosis in different parts of brain and cord.

In this there is a general loss of power, with tremor and agitation of the muscles whenever they are called into exercise. Lips and tongue tremulous in speaking; chin kept on breast to avoid the effort of supporting the head, which brings on tremor. Limbs quiet till moved, then agitated.

Infantile Paralysis.—The essential paralysis of children, from its being thought to be peculiar to early life; not infrequently do we find it in adults. It is, properly speaking, a systematic myelitis, a circumscribed, well-defined lesion of the cord, not involving neighboring parts. It is usually confined to the anterior horns of the gray matter of the cord; hence the term anterior polio-myelitis has been applied to the disease, whether occurring in infants or adults. As it occurs in infancy, or to children under two years of age, who have received a fall, blow, or suffered from teething, worms, there is following a febrile excitement, one or more or all of the limbs become paralyzed; the muscles of the trunk being also sometimes involved, and very exceptionally those supplied by the medulla oblongata. There may have been convulsions, coma or a transient loss of cutaneous sensibility, or temporary trouble with bladder or rectum; but to a great extent the brunt of the disease falls upon the motor power of a limb or limbs. After the attack, the limbs does not generally become more paralyzed; on the contrary, after a few weeks or months there is a gradual clearing off of the difficulty, as regards some of the limbs, one or more remaining unimproved. Many of the affected muscles begin at once to waste, and lose all power of contractility (degeneration sets in); others again resume their tone and function. The paralyzed muscles are soft and flaccid. After a variable period, there may be a gradual return of power, and some recover, while others rarely do so. In the end, in the affected muscles, atrophic changes are well marked, which may be so wasted as to leave the limb in a skeleton-like condition, or fatty substitution may mask the real loss of muscular substance, and give a false air of plumpness to the limb. The development of bone is also arrested, so that in several years after it may be shorter and thinner than its fellow. There is diminution of the calibre of blood-vessels, leading to com-

parative coldness and blueness of the limb, which often shows a strong liability to chilblains. The tonicity of unaffected muscles would seem to increase and overpower those whose function is destroyed, giving rise to deformities which no efforts can reduce.

In treating cases of this kind, the cause, if possible, should be removed, the mouth examined, and gums lanced, if necessary; confine the patient to bed for many months. Bromide of potass and ergot should be given early; muscles tested electrically for the first few weeks; any electrical treatment better to be avoided; discourage all attempts of voluntary movements of the damaged muscles or limbs, as it tends to excite action in their antagonistic muscles, and thereby increase the deformity; baths, oil inunctions, shampooing twice daily; stimulating linaments to spine; secretions attended to, and the general health built up; a general alterative and tonic treatment persevered in; diet rich in fibrin and phosphates.

Hysterical and Rheumatic Paralysis.—In hysterical paralysis, we must look for an hyperæmia or excitation or exaltation of sensual and motor nerves and their centres; very common in young men or women addicted to masturbation, or suffering from worms or other irritation of genito-urinary organs. It may in the same class of patients be excited by fright or other emotional condition; it may appear as hemiplegia, paraplegia, local, as aphonia, loss of voice, or some other part. The general symptoms of exaltation of nerve tissue in an hysterical subject will guide us to a correct diagnosis. It should be treated by removal of cause, as irritation of generative organs, disease, etc. May be cured by alteratives and tonics, and improvement of general health with shower bath, ice to spine.

Rheumatic paralysis is mostly confined to the muscles of lower extremities, forearm and arm, as the deltoid and trapezius, rendering it difficult to move the arm. Usual anti-rheumatic treatment; iodide of potass, colchicum, salicylate, soda, quinine.

Progressive Muscular Atrophy.—Wasting paralysis, with granular and fatty degeneration, and extreme wasting of muscular fibre, owing to defective nerve nutrition or supply. Patches of granular degeneration are found in the gray matter of spinal cord, whence nerves pass off to the affected muscles. There is also to be found starch globules or amyloid nodules around the central canal of cord. Nerve-cells shrunken and atrophied. It is very generally conceded that these organic changes in the cord take place some time before the muscles become affected.

Causes.—It seems to depend upon a constitutional defect, often hereditary, blended with tuberculæ, syphilis, caries, and

disease of bones, phthisis and other chronic diseases, in which a substance analogous to vegetable starch is found in round, oval or concentric layers usurping the place of nerve fibre. It is common among children, adults, and even the aged; males suffer more than females. Exposure to wet, cold, damp, hard work may act as an exciting cause. It is often a sequel of fevers, falls, blows, sun-stroke.

Symptoms.—Its characteristic symptom is wasting, degeneration, with loss of volume and power of voluntary muscles, without diminution of intelligence or sensibility. It may affect the upper or lower portion of the body, or the entire muscular system, or special muscles; whatever muscles become affected waste away and disappear, leaving nothing but skin and bone; with wasting comes weakness; tremors or convulsive quiverings of some of the coverings of the wasted muscles produced by irritation of skin, and more rarely neuralgic pains; extreme sensitiveness to cold; intellectual powers not disturbed; general health may even be good; when muscular atrophy is complete, only skin and bone left; patient has to be lifted and fed like a child. But after an indefinite period, power of articulation and deglutition become lost, and asphyxia may cause death, or some accidental condition may bring it about.

The duration of the disease may be from months to years. Complete recovery is rare, though the disease can often be retarded.

Treatment.—General alteratives and tonics; diet very generous; daily bathing; sulphur or ozone; if syphilis is thought to be the cause, baths, followed by inunctions of olive oil, with friction, shampooing; hypophosphite of soda or lime; glycerite of ozone.

Pseudo-hypertrophic Paralysis.—Essentially a disease of early life, mostly affecting male children. The child becomes weak on its legs, constantly falling, and getting up with difficulty; walk slow, clumsy, waddling, great aching in loins; calves of legs and buttocks of immense size, which is due to an immense growth of connective tissue, the muscles being entirely wasted; no treatment of any use; death after a long number of years.

Diphtheric Paralysis.—After partial recovery from attacks of disease-germs, as in diphtheria and typhoid fever. The *oidium albicans* of diphtheria not only affects the blood, but often produces grave changes in the nerves; in some cases causes irreparable damage. It may assume the form of hemiplegia, paraplegia, although more generally it is local. Loss of sensibility and motion is common. It is invariably associated with anæmia, and may last quite a number of months. Patients generally make a good recovery.

It requires a very constructive treatment, as regards diet and drugs—nerve tonics, local stimulants, friction, shampooing, change of air, sea bathing.

Mercurial Paralysis.—The inhalation or absorption of mercury produces a characteristic form of palsy, chiefly affecting the nerves that supply the voluntary muscles, causing a convulsive agitation, which is very much increased when volition is brought to bear upon them.

It is much more common than is generally supposed. The finer soluble preparations used by sectarian physicians—a set of knaves, who administer mercury because it is tasteless, acts very deleteriously on their dupes. The amalgam used by dentists is made up of pure mercury, and the coloring matter of much of their vulcanites is of the same metal. Besides, the workmen are exposed to its fumes in various mechanical and scientific pursuits, as looking-glass makers, button-gilders, glass and metal-platers, barometer-makers, etc. Chemists are much exposed, and should observe the greatest precautions to avoid the inhalation or absorption of this deadly poison.

The symptoms of mercurial poison of nerve tissue are variable, but embrace impairment of articulation and mastication, and often the power of locomotion. Delirium and acute mania are often present; the use of the hands are almost entirely lost; often epilepsy; great weakness and restlessness; skin acquires a dirty brown hue; soreness of gums; teeth turn black and decay; other bones become affected with inflammation, caries or necrosis, or lumps form on them; anæmia.

Treatment.—Removal of cause. Very liberal and nutritious diet, attention to bladder and bowels; baths, sulphur or else sulphuret of potassium with electricity; chlorate of potassa as a mouth-wash, of which some may be swallowed; due attention to other symptoms. From the moment of its recognition till weeks after recovery, *iodide of potassa* in doses of from five to fifteen grains thrice daily in sweetened water. The iodide unites with the mercury in the body, forms an insoluble compound, which is readily eliminated by the kidneys and to some extent by bowels and skin. In some cases it is advantageous to combine it with bicarbonate of potassa or carbonate of ammonia. No drug is of any real value but the iodide.

Lead Paralysis.—Lead exerts a very deleterious influence on the nervous system and blood. Its poisonous effects seem to manifest themselves on the finer nerves that supply the muscles of the forearm and duodenum. It usually finds access to the body by inhalation, in water, food and through the skin. Lead poisoning is more common than is generally supposed. The inner surface of the lead water-pipes of cities, oxidizes and finds its way into the water and is drunk. Lead enters into

the composition of culinary articles, as glazed earthenware. Acetate of lead is freely introduced in claret wine, and sailors who drink water from casks that once contained claret are often affected with lead poisoning. Operatives in lead mines, workers in lead, either as a metal, medicinal or chemical agent, paint, all suffer to a great or less degree. Those engaged in preparing the finer preparations, as carbonate, acetate, oxide, etc., are more common victims than plumbers, painters, oil-cloth workmen, paint-grinders.

Symptoms.—General indications of debility, with paralysis of the nerves that supply the muscles of the forearm and hand; extensor muscles of hand and fingers get paralyzed and hang down by their own weight when arm is stretched out,—called wrist-drop. Frequent attacks of lead colic. Taste and breath have a lead odor. Formation of a blue line on the edge of the gums just where they join the teeth is nearly always present and is typical of lead poisoning. It rarely affects lower extremities. If the patient's vital forces are impaired by drink and excesses, or frequent attacks of gout or rheumatism, it may cause death.

Treatment.—Same as for *Mercury*. Iodide has the same action on lead as on mercury. All operatives in lead should be strictly temperate; use no alcoholic drinks, endeavor to maintain a high standard of health, promote the function of skin by daily alkaline bathing, and should drink sulphuric acid lemonade daily.

Paralysis Agitans.—Shaking palsy, characterized by an involuntary tremulous agitation of muscles, which is independent of exertion and goes on while the muscle is at rest. Usually makes its appearance from fifty-five to sixty-five years of age; generally met with in men.

Its cause and pathology are unknown. It commences in the hands, chin or knees, and gradually extends over the entire body. Fingers and thumb generally in contact, as if taking a pinch of snuff. Associated with great nervous debility, restlessness and sense of heat; muscular power greatly diminished; intellect and senses damaged. Disease progresses slowly, usually taking about seven years before general paralysis and white softening set in. When well advanced, agitation or tremor may be so bad as to prevent sleep; deglutition and mastication performed with difficulty; a propensity to bend the head forward and to pass from a walking to a running gait; inclination of the body forwards, with bending of chin on sternum; slobbering, involuntary escape of urine and feces; delirium, fatal coma.

Treatment.—Cases are so utterly hopeless that few remedies are of much avail. Nevertheless, a general alterative and tonic course should be inculcated, with baths, friction, shampooing,

local stimulation to spine. Diet to be very generous, containing an excess of vegetable phosphates.

NEURALGIA.

Violent paroxysmal pain in the trunk or branch of a nerve. The paroxysms may be at stated periods with regular intervals between. It may attack any nerve in the entire body, but the subcutaneous nerves of the head, trunk and extremities suffer most severely.

Neuralgia may be said to be the cry of a nerve for richer and purer blood, being essentially a condition of defective nutrition,—debility being a prime factor in the case; over-work, struggle, worry, badly fed or defective nutrition.

Varieties.—When the pain affects branches of fifth pair of nerves it is called *tic douloureux*; certain nerves about the head, *hemicrania*; sciatic nerve, *sciatica*; the cardiac nerves, *angina pectoris*; nerves of the stomach, *gastrodynia*; the brachial plexus, *brachialgia*; intercostal and neuralgia of uterus, ovaries, kidneys, bladder, testis, etc.

Causes of neuralgia are to be found in anæmia, rheumatism, gout, malaria, syphilitic taint, tubercle, over-fatigue, exposure to wet or cold, disease of teeth, gums, dyspepsia, disease of kidneys, disease of bones, organic disease of brain, mercury, lead, etc.

Tic Douloureux—May affect either of the three branches of fifth pair of nerves. When pain depends upon morbid condition of first or ophthalmic branch, the supra-orbital nerve is most frequently attacked; suffering referred chiefly to forehead. Suppose the second or superior maxillary branch is the seat of the complaint, infra-orbital nerve commonly affected. Symptoms consist of excruciating pain shooting over cheek, lower eyelid, alvea of nose and upper lip. Neuralgia of the third or inferior maxillary branch is generally confined to inferior dental nerve; pain is referred to lower lip, chin, teeth and side of tongue.

Hemicrania.—Headache affecting one side of brow and forehead, often accompanied with sickness; often periodical.

In the treatment of neuralgia we of course must remove the cause, but we can never afford to let the patient suffer until that is effected, because that is usually a tedious affair in nerve diseases; so the first point that we shall enumerate is the alleviation of pain.

Croton Chloral Hydrate: This contains two more atoms of hydrogen than the chloral, and is, properly speaking, butyl chloral, which has the property of diminishing sensibility before producing narcosis. It gives instant relief in facial neuralgia in doses of fifteen grains, repeated, if necessary, after meals or largely diluted with water. The syrup of croton chloral is an

elegant and efficacious preparation. It gives immediate relief, but to effect a radical cure the cause must be removed. To combine the croton chloral with quinine we have still a more effective remedy.

Citrate of Caffeine is a valuable drug in facial neuralgia, the dose to be such as will give relief of pain. It operates better than guarana,—not so rapid and effectual as the croton chloral.

Bromo-Hydric Acid, with or without quinine, of which it is a solvent, operates very beneficially, if the neuralgia is due to reflex causes, in doses of from half a drachm upwards.

Tincture of Green Root Gelseminum, being non-poisonous only in very large doses, is best adapted to malarial cases, in doses of half a drachm upwards.

Salicylate of Quinine, in rheumatic and gouty cases, is so speedy in its action that it is unnecessary to precede it with any of the above remedies, for in six-grain doses it is usually efficacious within a few minutes.

While pursuing this course of treatment in relieving pain, the cause must, if possible, be ascertained and removed. In looking over the list of causes, we must scan them carefully as to anæmia, mercury, malaria, gout, rheumatism, syphilis; and to reflex causes, as teething, worms, liver, kidney, or other forms of chronic disease. The treatment should in all cases be adapted to each, and if no cause can be ascertained, the patient should be put upon an alterative and tonic course—all through relieving the intolerable pains. In these cases the condition of stomach, bowels, skin, kidneys, should be seen to.

Local remedies for the relief of pain are of little utility, but if used should, in all cases, be combined with chloroform, to carry the remedy down to deep-seated parts. Aconite and belladonna are especially valuable in neuralgia of facial nerves; cinchona, iodine and gelseminum, if of a malarial type; coffee, if due to nervous, anæmia; phosphate of quinine, if due to gout; and general treatment as to cause. Improvement of the general health in all cases. Diet very nourishing, raw eggs, animal food, milk. Clothing warm, flannel next skin. Warm tepid or cold salt-water baths. Friction to skin; change. Indeed, everything to improve the nervous system, and give the patient richer and purer blood, pure air night and day, great cleanliness, and avoidance of all causes.

Sciatica.—Acute pain following the course of the great sciatic nerve, extending from the sciatic notch down the posterior surface of thigh to the popliteal space, and often along nerves of leg to foot.

The causes are, a depression of the sheath of the nerve by cold, damp, or like conditions, irritated by blood circulating through it charged with the lactic or butyric acid of rheuma-

tism, the soda of gout, or the germ of syphilis. Sciatica, properly speaking, is not an affection of the nerve, but its sheath, which, under the irritation, becomes thickened and contracted, compressing the nerve, and thus causing the excruciating pain in movement, or numbness in the leg by compression. Sciatica, then, is not, at least at first, neuralgia of the nerve, but inflammation and thickening of its sheath, and this thickening produces a mechanical condition which presses the nerve, and thus gives rise to the neuralgia.

In the treatment of sciatica, the same ideas are to guide us as in the other forms of neuralgia—pain must be relieved; if the remedies laid down fail, then hypodermic injections of sulphate of morphia, repeated at intervals, or else anæsthesia of the nerve, produced by the proper remedies; as the application of menthol, in solution in alcohol. Active cupping once a week, or the acupuncturator thrice weekly, or the irritating plaster, worn continuously along the course of the nerve, are all excellent in promoting an absorption of lymph. The irritating plaster is the best application. Then, attention to the general health, and secretions. Case treated according to cause—gout, rheumatism, or syphilis; and whichever blood-taint lies at the root of the difficulty, a persistent use of iodide of potass in the compound syrup phytolacca, or the glycerite of ozone; iodine, acids in the absorption of the effused lymph; Iodoform occasionally; but let the main drug be the iodide of potass, in doses of not less than five grains, thrice daily.

STAMMERING.

Impediments of speech (stuttering) in nearly all cases is a nervous affection; having as its origin a want of equilibrium of the gray and white matter of the cervical portion of the cord, resembling chorea. The vocal apparatus is usually perfect. It may be congenital, but more likely to be the result of some shock in a fright, blow, or reflex condition, or follow some fever, worms, masturbation.

The treatment consists in the removal of the cause; improving the general health by bathing, clothing, frictions to the cervical portion of the spine, thus raising its standard of vitality.

Same remedies as for *Chorea*. Make the child speak slowly and distinctly. Let him fill his chest well before he articulates a word, and then enunciate one word after another. If unable to do that, let him beat time for every word he utters in talking or reading. A persistent course of measuring the words until the stammerer can read and talk straightforward for an hour, daily, will soon overcome the habit. Let the diet be brain-food, boiled fish, oatmeal porridge and massage.

NEURITIS.

Inflammation of a nerve is a rare disease. Nerve tissue being, intrinsically the most valuable texture in the body, the most highly organized, is the most difficult to depress. Even a bruise or wound is not sufficient; but it may arise spontaneously in gouty, rheumatic, mercurial and other depressed subjects.

Symptoms.—Rigors, fever, restlessness, severe and continuous pain shooting along nerve and its branches, muscles waste.

Treatment.—Arterial sedatives; free secretions; alteratives and tonics as to cause. The best local application, is the aconite, belladonna, and chloroform liniment. Rest.

NEUROMA

Is a solid or systic tumor connected with a nerve. Solid growths are fibrous in their character, consisting of dense plastic matter, implicating neurilemma and nerve fibres. Occasionally nerve fibres merely spread over tumor without being involved in its texture. A nerve, when divided, if its two ends are placed in apposition, will unite like bone, and sensibility and motion be restored. If not placed in apposition, their extremities will become bulbous, or may aid in the formation of these growths; so they are common after lacerations, tears, wounds, injuries, amputations. There may be one or several, and vary in size from a grain of barley to a melon.

Symptoms.—These growths are found in the course of a nerve; grow slowly but steadily; of an oval or oblong form; long axis in the course of the nerve; darting, lancinating pains in paroxysms.

Treatment.—Excision is the only hope of cure; tumor to be carefully dissected out, and, if possible, the ends of the divided nerve to be brought into apposition, and an effort at least made to keep up continuity, so that the function of the nerve be, if possible, restored.

HABITS.

Man, with his instinctive and moral nature, is easily modified by habits; more especially by the love of stimulants, which is an inherent element of both barbarous and civilized races, as is seen in the betel chewing and opium smoking of semi-barbarous races.

Tea and Coffee Habit.—The former, essentially enervating and waste-producing; the latter, highly constructive, bracing, giving civilized man remarkable powers of endurance; often becoming an inveterate habit, but never very pernicious.

The Alcohol Habit.—In no country in the world does the use of whisky and malt liquors produce such direful results as they do in our climate. Our dry, clear atmosphere is highly

oxygenized, vivifying and stimulating, causing great activity of muscular movement and cerebral thought; add to it another fuel, it actually burns up the tissues. The use of alcohol in small quantities produces chronic inflammation of the stomach, arrests normal metamorphosis; that is, checks elimination by liver, kidneys and other excretory glands, and tends to the production of fatty degeneration in muscles and glands; besides, it coagulates, indurates, atrophies the cineritious or cell-producing structure of the brain; at the same time, it paralyzes the motor elements. Its use in large quantities so coagulates and shrivels up the abode of Deity in man, that every vital function is destroyed, or at least impaired. As an illustration: should the drunkard impress his damaged spermatozoa upon the living healthy ovum; that is, if there be progeny, it will be tubercular, of a brain type, weak-minded, imbecile, idiotic, or the victim of nervous disease. Habitual inebriation is not even necessary to produce this result. One dose of this poison will prevent the brain elements from developing in the embryo, foetus, child or adult. Brain-growth is retarded, and incapable of habitation by the soul; idiocy of a congenital type is impressed; judgment, reason, memory is defective.

The Tobacco Habit.—This is one of great importance to our people, to whom from mere babes to a short old age, it is of very general use. It relaxes and enfeebles the muscular system, especially involuntary muscular fibres, like the heart and stomach; it exhausts the base of the brain; gives rise to aphonia or paralysis of the cerebral faculty of speech. Take alcohol and tobacco in their joint action, they dwarf and atrophy the brain, cause tuberculæ in the user and his offspring; they fret, whittle down the over-stimulated American; and, under these two habits, it is difficult to say what new forms of degradation and disease may not be produced.

The general method of use is by smoking, chewing, snuffing; ladies are often addicted to it in the form of eating snuff. We are unable to account for so many ladies using it, as it is ruinous to their nature, hostile to their happiness. How disease-creating, nauseous, disgusting tobacco ever became a habit to our ladies is an enigma to be solved: its use constantly indicates degeneracy and corruption. The use of tobacco in all cases is inimical to health. Snuff-eating is confined to ladies, and they generally begin by using snuff as a tooth powder; the habit gains, and the nervous system craves the stimulant; but it soon destroys the rosy hue of health and subverts and ruins digestion; following that, the complexion becomes pale, sickly, yellow; the cheeks lank, faded and hollow; eyes lose their brilliancy, and become jaundiced, sunken, hollow, beamless. It destroys the vital energies, gives rise to languor,

debility, tremors, disturbed sleep, and gives the eater the sepulchral shade of death. In the form of minute sub-division of snuff, its action is more destructive than by smoking or chewing, and how young blooming girls can bear its use is most unaccountable.

The Opium Habit.—This is generally created by the physician prescribing opium or morphia for the relief of pain; but ladies have found out that it gives unusual brilliancy to the eyes, and have got in the way of using it too extensively. Its use at first is not incompatible with great intellectual efforts and brilliant thought, but by and by, when it makes its dreadful ravages into the brain, muscle and gland, it is, without a doubt, the most persistent, irresistible and destructive of all habits. It over-stimulates, and thus exhausts, giving rise to the most feeble form of languor and despair; it atrophies the brain, so that the consumer is dull and stupid; it causes sterility, drying up the very fountains of life, and causing a human wreck often fearful to behold.

The Chloral Habit.—This is another very destructive cerebral stimulant, exhausting more especially the ophthalmic tract and causing impaired vision. Much used.

Arsenic, belladonna and other cerebral stimulants are not much used in this country.

Treatment.—Moral and physical restraint, free secretions, baths and massage daily, with a most generous diet and the internal use of erythroxylon coca.

Coca, of all known remedies, is specially adapted to take the place of alcohol, tobacco, opium, chloral. The drug habit is to be at once discarded, and the coca, in sufficient doses and at proper intervals, substituted. The patient is better satisfied with it than his favorite stimulant. If he continues its use it will do no harm, because on it his appetite improves, his sleep is prolonged, his strength physically and mentally increases, and he is the being of a new existence, free from the slavish action of the habit and capable of wonderful powers of endurance and fatigue. Coca erythroxylon is an inestimable gift to civilized man. Its wonderful action on the nervous system in causing its recuperation under the most adverse conditions; its stimulating power in perfectly supplanting the most inveterate habit, the person feeling better with it and having the power of discarding it at any time after six or eight weeks use. It is important to get a good article.

The property of coca is not found in any other drug, viz: in removing entirely the desire or craving for any other drug. It causes an effect which is difficult of explanation, but it is the remedy in opium, alcohol and chloral habit and dipsomania. It is a safe, reliable nerve tonic, acting rapidly as a diffusible

stimulant, leaving no unpleasant effects. It acts promptly upon the nerve centres, causing mental quietude and satisfaction, with easy respiration and excellent digestion; acting upon the cord, relieving anæmia of that structure. It has a most wonderful effect in relieving that undefinable sensation of languor, weariness and mental unsteadiness. It is very exhilarating, which is followed by ease and comfort, relieving all mental misery and distress.

Arsenic Habit.—This is not so common in our country as the others, still, isolated cases are met with now and again. It is generally found in ladies, first inaugurated by ignorant doctors prescribing arsenic for some roughness of the skin. Its use gradually wears on the patient, stimulating both brain and heart until the habit is acquired, when the patient can tolerate large doses of the drug in solution as well as in a crude state. Still, the lady, in order to procure the smooth, enameled white skin, will persevere, until some day an over-dose is reached, which will terminate the case, and some one else suffer from her reckless indiscretion.

No special antidote known. Self-denial, general alteratives and tonics.

Although those and other habits are thus acquired, it must ever be borne in mind that in all cases the working faculty of the brain is thrown out of gear. Brain and nerve tissue are of the highest possible organization; they play in the organism the part of primary activity. They are the centres of all energy, they generate all force. They do not live for themselves but for the whole body, and when a habit is created, their nutrition is impaired. We see this well illustrated in the dwarfing and whittling-down process when any of those habits are acquired by children or young persons in arresting their growing brain. It is positively certain that those habits never strengthen the brain, but it is too true that they impair its activity, retard its progressive tendency. That higher organism, the brain of man, certainly requires a better stimulus than what can be supplied with *alcohol, tobacco or opium*. None of these elements impart nutrition nor growth. No; they are fatal to the growing brain of man; they cripple its organization; they do irreparable, structural mischief, the effects of which are permanent. A well-fed and properly exercised brain free from those habits, works without tension or friction of any kind. The knit brow, straining eyes and fixed attention of the tobacco or opium slave, are not a token of power but of weakness. When the brain is not crippled by those debasing, deleterious habits, its intellectual faculties work easily, without tension or jar.

DISEASES OF THE ORGANS OF CIRCULATION: HEART AND BLOOD-VESSELS.

ATROPHY OF THE HEART.

A condition in which the whole heart diminishes in size, wastes and dwindles in all its parts, and is found diminished in weight from nine to five ounces; in other cases the muscular walls suffer.

Causes.—As the heart is an involuntary muscle, it is liable to be affected by any mental strain or worry; that is, its nutrition is impaired. Tobacco exercises a very deleterious effect on it in depriving it of, or impairing its vital tonic. Sexual excess tells badly on the heart. All forms of cerebral exhaustion, poisons, like alcohol, and deleterious drugs, all anæmic states of blood, tend either directly or indirectly to cause atrophy. Depression of the great sympathetic whose branches cover the anterior portion of the heart, is also a common cause.

Symptoms.—The general symptoms are those of debility and anemia, vertigo, specks or spots before the eyes, noises in ears, paleness of the surface, lips, tongue, coldness of skin, temperature low, pulse fifty to sixty, respiration twelve. On percussion over region of heart, instead of the area of dullness being four square inches, or the size of the closed fist of patient, it is very greatly diminished; on putting ear to chest, systolic and diastolic sounds scarcely audible.

Treatment.—General attention to bowels, skin, kidneys; flannel clothing; a diet rich in blood elements, animal food, milk, eggs, etc. Whisky, tea, coffee, sexual excess, tobacco, study, or worry of any kind strictly forbidden. Stimulating applications over region of heart, as mustard, capsicum or warming plasters, better still, irritating plasters. Gentle exercise in open air, and then try quinine and aromatic sulphuric acid, compound tincture of myrrh and quinine. General constructive course of treatment with gentle open-air exercise.

FATTY DEGENERATION—ATROPHY.

This may be a sequel of simple atrophy, for in the degeneration of muscle there is an inherent tendency in it, when its fibres waste, become pale and inelastic, for its proper structure to be usurped by fatty nodules. Some suppose that fatty degeneration may take place without atrophy. When it occurs, muscular fibre is either usurped by or infiltrated with fatty granules, with or without any fatty disease of liver or kidneys. Valvular disease may or may not exist; when it does, aortic more generally affected than mitral valves. Same symptoms as in atrophy, with the exception that there is more giddiness, nervous exhaustion, loss of tone; heart's sounds not only weak but irregular; often dropsy and pulmonary apoplexy and attacks of neuralgia of the heart. Common among those advanced in life; apt to cause death by rupture of heart after any mental or physical excitement.

Treatment same as in *Atrophy*.

HYPERTROPHY OF HEART.

Enlargement of the heart is much more common than atrophy. The weight of an adult male heart is about nine and a half, and the female eight and a half ounces, but in enlargement it often weighs several pounds. Hypertrophy may take place in various ways. It may be general, that is, its walls increased in size or thickness without any change in its cavity,—this is called simple hypertrophy; the walls may be thickened and the cavity enlarged,—called *eccentric hypertrophy*, or enlargement with dilatation; or the increase of thickness of its walls may be accompanied with diminution of cavity,—concentric hypertrophy. In cases of valvular disease and other forms of obstruction, hypertrophy is of utility in overcoming the impediment to a free flow of blood. Hypertrophy of left ventricle is usually due to aortic valvular disease, or to Bright's disease, in which there is resistance to the passage of the blood through the arteries and capillaries. Hypertrophy with dilatation of right ventricle generally due to disease in the mitral valve, causing obstruction to the pulmonary circulation, or to some chronic disease of the lungs.

Causes.—Enlargement of the heart may be predisposed to by the use of tobacco, tea, alcoholic stimulants, great mental strain, worry, disease of brain, blood, etc., although the common exciting causes are over-stimulation, excitement, violent muscular exercise, as running, jumping, rowing, hoisting, lifting; excess, use of malt liquors, sexual excitement.

Symptoms.—There is usually vertigo, *muscæ volitantes*, *tinnitus aurium*, redness of face or plethora; heat, respiration and pulse are up. The sounds of the heart are not only frequent

but loud, audible at a distance; there is a fullness or bulging, often a wearing away of the ribs; instead of the area of dullness on percussion being four square inches, it is increased to more than double; there is also numbness in left hand extending up the arm, caused by a distension or stretching of the recurrent branches of the subclavian nerve over the heart reflected to the brachial plexus, thence to the hand. There may be bleeding at the nose, cough, difficulty of breathing from enlarged heart pressing on lungs; often palpitations; difficulty in walking quickly; uneasiness, and sense of fullness and pain about cardiac region.

Treatment.—An avoidance of all mental and physical excitement; prohibit tobacco, tea, coffee, whisky, ale, sexual congress. Diet nutritious, but not much animal food unless there is debility; clothing warm, abundance of fresh air. Keep the circulation tranquil with digitalis, which will slow the heart, contract its fibres, diminish its size. It may be necessary to keep the patient on digitalis for one or two years, and as it is a permanent tonic and astringent the longer it is given, instead of increasing, it is rather necessary to diminish the dose. Its proper management is our main reliance in hypertrophy. Give slowly, guardedly bring the pulse to seventy-five and keep it there. Aconite and cactus grand. may once in a while be of utility; iodide and bromide in vegetable alteratives are of utility. If there is debility, tonics; secretions kept active. Belladonna plaster over region of heart.

FATTY DEGENERATION OF THE HEART.

In atrophy and hypertrophy of heart, when the minimum or maximum is reached, there is great tendency for the usurpation of muscular structure by fat. Indeed, this is the natural tendency of muscular degeneration, and it is to be looked for if the case does not admit of cure. Fatty heart is to be found also in a condition of general obesity, and when it occurs here its chief features are, those of an enlarged heart impeded in its functions. Pulse quickened while its force is diminished.

There are many mysterious notions about the fatty heart which adds to the general dread of it in and out of the profession. We cannot say positively during life that a heart is fat. We have no signs during life that can point out the dead-leaf color of the ventricles, or the rows of beads of fat within, or the loss of striation with fat granules in the fibres, commencing in fatty necrosis. But a strong suspicion is warranted if there be fatty degeneration elsewhere, such as an arcus senilis, or pain across the sternum; paroxysms of severe pain in the heart; sighs frequently; is easily put out of breath; skin having a yellow, greasy look; subject to syncope, or to seizures in which the respiration

seems to stop; vertigo and congestion of brain. Still, there are a group of symptoms that point out a want of vigor in the heart; of arterial anæmia, in cold extremities and a defective pulse; of easily excited difficulty of breathing; of syncope and of acute anæmia of the brain in vertigo, and of attacks resembling apoplexy. Atrophy and hypertrophy do not usually involve the heart alone, but the whole muscular system. So with fatty degeneration; it is simply a part of a wide-spread change of degeneration. Wasting diseases impair the integrity of the heart; so do fevers; but repair after these is swift and usually complete. Youth is not the season of fatty heart, unless broke down by debauchery and excess. The fatty heart is the concomitant of senile degenerative changes.

There is a condition often mistaken for fatty heart because it resembles it, and may be called "heart starvation." This is a common malady. The assimilative powers are defective, especially as regards the digestion of albuminoids; consequently the tissues are badly nourished, and the heart suffers especially. This cannot be a matter of surprise. The heart must work incessantly; so must the diaphragm, else the organism would perish. When other muscles are hungered they may rest, but these two must carry on their ceaseless round of duty. The result is, those two great muscles are starved. The heart's impulse is feeble and it sounds weak and ill-defined; the pulse is compressible, and other signs of a defective circulation. The impairment of the action of the starved diaphragm is seen in the difficulty of breathing produced. The mistake of recognizing a starved heart for a fatty one is often made. The following will guide to a correct diagnosis. In heart starvation there is no sign of degenerative change elsewhere; but there is loss of appetite, deficient hours of sleep, deficient action of liver, and sundry nervous symptoms due to defective nutrition of the nervous system; depression, irritability. The brain is under-fed and poisoned with the products of mal-assimilation; the blood is charged with nitrogenized waste, and there is pain and spasm, due to the waste-laden blood poisoning special parts.

Heart starvation is a disease of early and middle life—associated with overwork and deficient digestion—associated with mal-assimilation and not with degenerative changes in elderly persons. Hard drinking, where alcohol is taken in large quantities, leaves the heart starved, and ushers in true fatty degeneration as a sequel. Fatty decay is common in the drinker, because of the absence of albuminoids in the blood. Such fatty necrosis is common in some fevers, but is repaired when the assimilative processes are restored. The heart wants to be considered as a muscle liable to all the diseases of muscles and their effects, either in exhaustion or over-stimulation. Cases

admit of great improvement by removal of causes; good food, easy mind, tonics, and a general alterative course; change of air, avoidance of all excitement.

DILATATION OF THE HEART.

The use of tobacco is almost general throughout our country; besides its action in contracting the cerebral convolutions and poisoning the brain, it has a most disastrous action on the muscle, of the heart, in enfeebling, softening and relaxing its structure, and diminishing its vital tonicity; and as a result we find cardiac dilatation very common. It presents itself in three different forms:

1. *Active Dilatation*, in which there is enlargement of heart with dilatation, and when the expansion predominates over the hypertrophy.

2. *Simple Dilatation*, in which the thickness of its walls are normal.

3. *Passive or Attenuated Dilatation*, the walls being thinned.

Causes.—Mal-nutrition, or starved heart, or fatty degeneration, may operate as a predisposing cause; but sudden or violent muscular exertion, as running, jumping, rowing, lifting, straining, etc., are common exciting causes. Besides, it is often a sequel of hooping-cough, asthma, emphysema, and it may arise from embolism, endocarditis or valvular disease.

Symptoms.—The chief symptoms are, a small weak pulse, scarcely perceptible; coldness of extremities; giddiness, with pallor of features, deranged digestion; attacks of fainting; paroxysms of asthma; restless nights; palpitation; dropsy of chest, abdomen and cellular tissues often present. The physical signs; weak impulse, more like a tap, which imparts a thrill; first sound loud, short, sharp; second, usually weak. The area of dullness may be great, but there is no bulging out of ribs; no loud audible beats; no numbness in left hand or arm, neither is the face congested; no epistaxis; nor near so much lung trouble as in enlargement.

Treatment.—Rest of mind and body; good nourishing diet; bathing or sponging; secretions regulated; flannel clothing; prohibit tobacco, tea, coffee; all excitement, especially in going up stairs, straining, lifting, or sudden movements. A vegetable alterative and tonic course. Relieve symptoms. Give digitalis a fair trial for one or two years. Its action must be guarded and its physiological effect carefully noted. Aconite, cactus, menthol and cardiac drugs of little use.

In addition to the use of the best of diet in all cases, there should be the most rigid avoidance of all alcoholic beverages, sexual excesses, or anything likely to bring about excitement, or quicken the circulation.

CARDITIS.

Myocarditis.—Inflammation of the muscular structure of the heart.

An anomaly in disease, the inflammation of a muscle. In this case we have the old adage of a broken heart. The spleen, left kidney, all the abdominal viscera are in man freely supplied with branches of the great sympathetic as well as the face, larynx, lower lobe of right lung, and, above all, the heart; so that when the vital forces are subjected to the depressing influence of city life, solar heat, over-work or exhaustion, added to which an intense struggle for existence, we have the process of inflammation established in that organ.

The first symptoms, aside from the ordinary languor, lassitude, debility, general prostration, is a sudden seizure of violent steady pain in the heart, out of all proportion to any other kind of pain; intense excitement, greatest anxiety; features change rapidly, become ghastly or cadaverous; tongue coats rapidly, brown, dry, darkish; breathing difficult, irregular, labored; action of heart violent but unsteady; rigors heavy, frequent; and a fever of the highest possible kind, with great oppression about the chest; difficult respiration, dread of suffocation, alarming palpitation, delirium, extremities become cold, fits of syncope, pain in heart all the time increasing in severity.

Its duration is from twenty-four to forty-eight hours, invariably terminating in death. The proper treatment to try, if seen early, would be wet cups over region of heart, followed by hot poultices in which opium is abundantly diffused. Then there are three drugs that act well on this part of the nervous organism, and they must be given often and in very large doses.

Veratrum viride, five-drop doses, often and persistent.

Pulverized opium in one-grain doses, but frequently, and

Sulphate of quinine, in from ten to thirty-grain doses every three hours.

The three drugs act harmoniously together; the opium prevents the veratrum from prostrating, and retains the quinine in the blood. To be successful, case must be seen early.

ENDOCARDITIS.

The endocardium, or the serous membrane which lines the interior of the heart, and which by its reduplication assists in the formation of the valves, and covers them completely, is frequently the seat of inflammation.

The predisposing causes are the use of tobacco and other stimulants; over-work, nervous exhaustion, worry, grief, sorrow. The exciting cause is rheumatism or gout, or both.

Symptoms.—In the acute form, there are the ordinary symptoms of languor and debility, with a deep-seated, sharp, lancinating pain away down deep, as the patient expresses it, in the heart, with great oppression and uneasiness over the region of the heart; rigors and a fever; pulse small, feeble and intermittent; patient very restless and anxious; prefers to lie on back; great difficulty of breathing; jactitation, cold sweats, fainting fits.

If the vital power is greatly depressed, or constitution depraved, there may exist a true typhoid condition, with all its varied train of symptoms. If the endocarditis is of the subacute form, or what is more common, of a low chronic type, the symptoms will be less prominent, milder and more obscure, so much so, that patients attacked with rheumatic fever have endocarditis without being aware of its existence; nevertheless, it is apt to leave structural changes on the valves that give rise to trouble.

That portion of the endocardium lining the orifices and covering the valves most frequently attacked; the left side of the heart more generally implicated. It is seldom directly fatal; its effects, effusion of lymph, and its organization into cartilage or bone, or the effusion of urate of soda in gout, and its degeneration into a chalky concretion, most to be dreaded; invariably gives rise to valvular disease.

Place the hand over the region of the heart, it experiences a vibratory thrill; no increased area of dullness; place ear over heart, a soft, mitral, blowing murmur can be easily detected. Its duration may be months or years; but its inevitable termination is thickening of the valves, general loss of tone, obstructed circulation, impoverishment of blood, dropsy and sudden death.

Treatment.—General attention to bowels, kidneys, skin; fever to be controlled with aconite, veratrum, opium, with tincture of bryonia, until there is a perfect amelioration of pain; repeated mustard plasters, followed with hot poultices, followed with croton oil, and irritating plaster to be worn for some months, or else belladonna plaster; perfect rest of mind and body; nothing to fret, worry or cause anxiety; diet to be good, light, nutritious; treatment for rheumatism or gout to be carried carefully out; convalescence to be established on vegetable alteratives, with iodide of potass and tonics; guarding against that twin-monster, rheumatic gout, by keeping the body covered with flannel, and avoiding everything likely to debilitate. Forbid tobacco, alcohol, tea, excess, debauchery, etc.

The very best of diet should be given, consisting of a mixed animal and vegetable kind; and if unable to exercise massage should be resorted to morning and night.

PERICARDITIS.

Inflammation of the pericardium, or inflammation of the white fibrous serous covering of the heart or sac in which it hangs. Being a highly organized and perfect white fibrous tissue, it is most obnoxious to the poison of rheumatism, gout, urea in congested kidneys, ichoræmia, scurvy, etc.

The most common predisposing causes are, tobacco, alcohol, tea, sexual excesses, nervous exhaustion, diseases of brain, struggle for existence, worry. These and like causes weaken the cardiac plexus of nerves, which, if once enfeebled, are very liable to be irritated by morbid states of the blood.

The common exciting blood poison is rheumatism or gout, but other conditions of impure blood will also give rise to it.

Symptoms.—There may be a general attack of rheumatism or there may not. An acute attack of pericarditis is usually ushered in with all the symptoms of fever; first, languor, lassitude, debility, with sharp, lancinating pains in the pericardium; pain in head, back, calves of legs; rigors, and a fever of a high grade; tongue coats heavily, urine loaded with uric acid; the sharp, lancinating pain in the heart darts through to the scapula upwards to the left collar bone and shoulder, down the arm; the action of the heart becomes violent, tumultuous; its action irregular; the difficulty of breathing is often extreme; inability to lie on affected side; very much anxiety; features become contracted; there is great giddiness, noises in ears, bleeding from nose. As the case progresses there is extreme debility, cough, suffocative paroxysms, fainting fits, œdema of face and feet; often great restlessness, delirium, distortion of features, spasms or convulsions.

In subacute and chronic cases the symptoms are so slight as scarcely to be suspected; just a little pain, sharp, darting to shoulder blades, but effusion of lymph, which causes adhesions between the pericardium and heart, and organic disease, or effusion of serum, which, if copious, may fill up the pericardium and compress the heart, impede its movements, completely muffling its sounds to the hand or ear.

It is easily recognized in any of its three forms by the pain—sharp, lancinating, darting in acute cases through to the shoulder blades up to the clavicles. In the acute and subacute form a friction sound can be felt by the hand and heard by the ear; or if not that, an alternate rubbing to and fro sound; friction sound, attended with valvular murmurs and excitement of heart.

In the chronic or declining stage of an acute attack, serous effusion often takes place, when no friction sound can be heard, nor even the sounds of the heart itself, being muffled

by the water or fluid, which, if great, may compress the heart, so as to cause weakness or paralysis.

The duration of pericarditis depends much upon the treatment. With such improved remedies as we now have it should be short.

Treatment.—The acute form is best treated as a case of acute rheumatism—perfect rest in bed, between blankets; heat to feet; open bowels with salines, milk and bicarbonate of potassa; extract of beef for diet; local stimulation over region of heart as long as can be borne with mustard, then hot poultices with opium; and then a reapplication of the mustard and poultices again and again. Aconite, veratrum viride and belladonna should be administered every half-hour, hour, or three hours, keeping the pulse at seventy. Three grains of Dover's powder, with one grain of pulverized opium, should be given at least every three or four hours, or oftener, the point aimed at being a perfect freedom from cardiac pain. Never let the sensorium feel the pain of an angry, irritable heart. Quinine must also be administered in large doses; if there is any positive idiosyncrasy to its use, the salicylate of quinine, or salicylate of soda, which have proved so remarkably efficacious in rheumatism, should be used. If the tongue cleans under those remedies, the best plan is to hold the position with them, with the exception that their doses should be reduced to ordinary standard, and the irritating plaster applied over region of heart. Then general anti-rheumatic treatment carried out with salicylate soda, colchicum, iodide of potass and quinine, mineral acids and other tonics. In the chronic form, irritating plaster over region of heart, general alterative and tonic remedies, with anti-rheumatic remedies, avoiding all causes that would be likely to enfeeble the heart.

HYDROPS PERICARDIUM.

Dropsy of the pericardium is invariably a result of pericarditis. It is to be recognized by the history of the case—the cardiac expression of the features; difficulty of breathing, cough and general debility; also, by the increased area of dullness on percussion; by the sounds of the heart being muffled; negatively, by the skin of the face being pale; no numbness in left hand; by respiration, heart and pulse being low; usually oedema of feet and legs.

Treatment, same as for *Dropsy*, with the addition of the steady application of the irritating plaster over region of the heart, and the persistent use of the hair-cap moss in the form of an infusion.

The diet here should be very generous, consisting of articles that can be converted into good, rich blood.

FUNCTIONAL DERANGEMENT OF THE HEART.

Requires a short notice, as it often so closely resembles organic disease of the heart. It is brought about in this way: the reflex centre, medulla oblongata, is weak from some cause or other, so are the various nerves that supply the heart. With a weakened bulb, any irritation in the body, such as worms, neuralgia, uterine irritation, or irritation of clitoris, penis, kidneys, bladder, stomach, liver, will be easily and promptly transmitted to the centre, from thence to the heart, giving rise to this functional disturbance; nervous exhaustion, over-study, anxiety, sexual excesses, weaken the nervous centre. Tobacco, tea, whisky not only enfeeble the reflex centre, but devitalize the heart. Gout, rheumatism, syphilis, mercury act on the weakened cardiac nerves, circulating through them, poisoning them.

Symptoms.—In the so-called functional derangement, we may have every symptom of organic disease, irregular pulse, palpitation, fluttering, with a cardiac murmur and subcutaneous anæmia in anæmic subjects. Dull, weary ache over region of heart; occasionally sharp, lancinating, catching pain; inability to lie on the affected side, owing to tenderness; very great mental depression; often dyspepsia, with heart-burn, flatulence, and eructations of gas or acid secretions; vertigo, faintness, noises in ears, specks or spots before the eyes, flushing of face, violent palpitations, with pulsations in aorta. In women with uterine or ovarian trouble, or young men addicted to masturbation, smothering, difficulty of breathing, globus hystericus.

Treatment.—Cases of this kind require fine judgment, long experience and keen observation. Symptoms must be relieved, for they are real, not imaginary, until the cause can be reached. If patient is intelligent his case should be fully explained to him. He must be told his nerve centres are feeble from some cause or other; that his cardiac nerves have lost their tone; that there is an irritation carried to the weakened but now highly impressible bulb, thence transmitted to the heart; or that the nerves of the heart are starved from poor, or poisoned by bad blood. Once the cause can be removed there is usually little difficulty in the case, but that must be done. Investigations as to them embrace not a cursory but careful examination of lungs, stomach, liver, bowels, kidneys, genito-urinary organs, skin, blood, for irritation or disease; and if no cause can be found, the case should be treated with alteratives and tonics, with irritating plaster over region of heart, and treatment persevered with for months. At the same time every means should be adopted to invigorate the nerve centres with cinchona,

ozone-water, and local stimulation to nape of neck. In all cases best of diet, daily sponging, gentle exercise, sea bathing; tobacco, tea, alcohol, sexual excesses to be forbidden.

ANGINA PECTORIS.

Cardiac neuralgia, or as some term it cardiac epilepsy, from the fact that some cases are accompanied with a warning, a partial death of the cardiac nerves, in which severe intermittent pain is felt about the heart, with a sense of strangulation and a feeling of impending death; occurs most frequently in advanced life; more common in men than in women. It seems to be associated with ossification of the coronary arteries and fatty degeneration. The cardiac nerves are specially involved in cases of ossification of the coronary arteries, as they are in such close proximity throughout their whole course, for these nerves not only accompany the arterial trunks, but pass into the muscular parietes of the heart along with the coronary vessels; for nervous filaments can be traced as far as the third or fourth subdivision of the arteries; here we lose sight of them, even in the largest animals. The pain radiates or shoots through the connection of the cardiac plexus with the spinal to the brachial and cervical plexus.

Causes.—Disease of brain, morbid states of blood, stimulants, tea, whisky, tobacco, sexual excesses, mental excitement, heart starvation from impure blood, defect in organs of digestion and assimilation, mal-assimilation, heart badly nourished, over-exertion, mental or physical, loss of sleep, liver working sluggishly, brain under-fed, the weakened nerves of heart poisoned by products of mal-nutrition or disease-germs; the waste-laden or disease-germ blood produces spasm, worry, struggle for existence, etc.

Symptoms.—Generally the first attack comes on after ascending some slight acclivity, or making some slight exertion, or after a meal. It comes on with a sudden seizure of excruciating pain in the heart, shooting from the breast-bone to back, often accompanied by a feeling of constriction in the chest as if grasped by a vise. The pain is localized, still, it may shoot toward the shoulder, down the left or both arms, even down to the lumbar nerves. This brings the patient to a stand-still; he fears to breathe, but if he chooses to breathe he can do so freely enough; he feels a sensation as if of impending death, and a ghastly paleness overspreads his countenance. The pulse may be regular, or it may intermit or stop, or be feeble and irregular. After a few minutes pain suddenly ceases, and the patient is well, but dreads another attack or a recurrence. At first there is often no lung difficulty, as asthma or emphysema or dyspepsia; it seems to be brought about by some trifling

exertion, some emotional excitement of heart's action, but as it progresses it does not seem necessary to require an exciting cause, as it will come on when he is asleep, the patient waking up in a paroxysm of anginous pain—a pain so excruciating and commanding that no words can express its intensity; it is appalling; it unnerves the strongest mind, and death would seem to be preferable to such suffering. The sudden violent pain produces sickness, faintness, depression of heart's action, pale and anxious countenance, coldness, cold, clammy sweat. As the struggle passes off patient regains his usual health, often appears quite well. Whatever produces depression in the function of the fibres coming from the posterior roots of a spinal nerve, and as its result pain or neuralgia, produces also depression of function of motor fibres coming from the anterior root of the same nerve, and as its result sub-paralysis of the parts to which it is distributed. Hence we have in angina pectoris two distinct sources of depression of the cardiac action; (1) we have the most depressing effect of a pain, the most acute and severe that the human body can experience; and (2) we have the action on the cardiac motor ganglia of the same cause which, acting on sensitive nerves, give rise to this excruciating agony; for we cannot suppose that the depression of motor is any less than the sensitive ones; that is, that the epileptic paralysis of motion bears a relation to the acuteness of the pain, which is the index of the depression of the nerves of sensation.

Should death take place as the result of an attack, the heart will be found flabby, uncontracted, due to inhibitory paralysis. Death is not due to spasm, for if it was it would be instantaneous; whereas, it is gradual, a progressive lowering of the heart's action, becoming feebler and feebler until it ceases to beat.

The main theories that have been advanced to explain the phenomena of the seizure are, spasm of the heart, depression of cardiac plexus, dilatation of heart, and ossification of coronary arteries. Pain is a symptom of variable significance here; it is always intense, arising and ceasing suddenly, and accompanied with a feeling of approaching death.

Angina pectoris has no relation to fatty degeneration, in which there are faintings, cardiac asthma, feebleness of pulse or of the cardiac impulse, with yellowness or pastiness of the complexion, and an arcus senilis.

Treatment.—This resolves itself into two distinct divisions during the fit and intermission. During the fit our measures are but palliative, but much more ample than what our forefathers possessed. They had only the use of external stimulants and narcotics—vain hope where minutes are precious. Modern

discovery has changed all this. We now have remedies that can be administered by inhalation or hypodermic injection, that can give the patient instant relief of that terrible pain.

Foremost among all our modern appliances for this dreadful breast pang, we place nitrate of amyl, a drug of great power, a volatile narcotic. To obtain a satisfactory result it must be fresh; not kept in bottles, but in hermetically sealed capsules or pearls, a dose ranging from three to eight drops in each, opened, dropped on a piece of lint and inhaled. It is perfectly safe, and may be entrusted to the patient with the certainty that he will not injure himself by its use. It gives immediate relief, alleviates and removes the pain. It flushes the face, quickens the pulse, and lowers the blood pressure on the heart.

If the nitrate is not procurable, or fails on account of its properties being lost in bottles, let the patient inhale a few drops of chloroform, and just as it begins to narcotize, inject hypodermically one-quarter of a grain of sulphate of morphia, so as to have the patient pass from the chloroform sleep into the morphia sleep, from which the patient will wake up in about eight hours free from pain, but exhausted. Is there no danger from chloroform in fatty or flabby heart? No, not if carried to the point we desire. Nearly all cases of fatty or flabby heart are due to heart starvation, and are benefited by such a stimulant if carried to a certain point, just its slightest effect, from which the morphia at once reacts. No diseased condition need deter the careful and cautious use of the remedy. In reckless hands it is not safe, but with care it is all right. Angina is such a depressing disease that we need perfect narcotism of the nerve centres through which the action takes place—a perfect setting free from all depressing influences.

Ether is also excellent, but not rapid enough in its action.

Nitro-glycerine gives the most complete relief in angina; one to two drops of a one per cent. solution in serious cases gives the most complete relief from pain. Administer in water, and continue during the intermission thrice daily, increasing the dose to eight drops. It lessens the attacks, breaks their frequency and force. Lobelia, sumbul, and other antispasmodics are of little utility.

However satisfactory our treatment may be with some of the above or other remedies during the paroxysm, it is during the intermission that the most striking results are to be obtained. During that period the most strenuous efforts must be made to improve the patient's general health, and especially to tone up his heart; avoidance of cold, damp, strong exercise, walking after meals, sexual intercourse and mental excitement; rest, warmth in open air, driving or sitting is to be recommended. His diet must be regulated, to consist of the blandest, most nutri

tious and unstimulating foods, as broiled beefsteak, boiled fish, eggs, milk, cream; avoid everything difficult of digestion, or that will give rise to flatulence, or stimulate and thereby weaken the heart. Prohibit tobacco, tea, whisky, etc., etc. The whole system must be attended to. Mild laxatives; an active skin by sponging and friction. A healthy stomach and liver does much to improve the tone of the heart, but a healthy brain and pure blood will aid more. The irritating plaster, two pieces an inch square, or else repeated small blisters of undoubted efficacy.

A very persevering course of vegetable alteratives and tonics should be resorted to, as phytolacca and iodide of potassa, stillingia and iodide of sodium; mineral acids and cinchona, quinine and iron. Either the irritating plaster or belladonna plaster to be worn constantly over heart; the former is preferred; some are partial to the latter.

While pursuing an alterative and tonic course, changing remedies weekly, and keeping two open sores at nape of neck freely discharging, then a special class of remedies are to be given to improve the faulty nutrition of the heart. We shall enumerate a few of those remarkable drugs: digitalis, arsenic, sulphur, quinine, phosphate of iron, nux vomica. Digitalis in small doses, not exceeding four drops of the tincture thrice daily, is invaluable in promoting the nutrition of the heart. Fowler's solution, in four-drop doses after meals, is invaluable in cardiac neuralgia and weak heart, being a special tonic to the nerves of the heart. Quinine, iron, hydrastin and nux increase the nerve nutrition, renders them less liable to pain, and are especially valuable in all cardiac neuroses.

VALVULAR DISEASE OF THE HEART.

Irritation of the endocardium by various blood poisons, as gout, rheumatism, and other poisons, gives rise to grave changes by the effusion of lymph and other deposits. We have also the effects of violent muscular exertion, as running, jumping, strains, lifts, as well as such diseases as asthma, whooping-cough, which give rise to effusion of lymph upon or beneath this serous internal lining membrane. This membrane being reflected upon the valves, the latter lose their delicacy and transparency, and become thickened, puckered and often adherent to each other, and the tendinous cords become contracted. Independent of irritation and effusion, associated with or dependent on the internal lining membrane, the valves often become covered with warty vegetations or excrescences, or the seat of living, gouty and other deposits; they are also liable to cartilaginous or osseous degeneration.

The effects of these different deposits or thickening is either

to contract or narrow the orifice, and so obstruct the passage of blood—called valvular obstruction; or by the thickening or degeneration of the valves, causing them to become shorter and thus prevent them from closing the orifice, and thus permit of regurgitation of blood, valvular insufficiency, or regurgitant disease of the valves. There may be only valvular obstruction or valvular insufficiency, or they may co-exist together.

Causes.—The remote and predisposing causes are very varied, and embrace anything that enfeebles the heart, disease of brain or blood, but, more especially, tobacco; neither tea, whisky, excess, debauchery, tell so heavily on the heart as tobacco. The heart and its internal coverings weak, blood laden with acrid waste, acid, soda, lime, and other elements are easily and readily effused, which give rise to the difficulty.

Symptoms.—Shortness of breath on slightest exertion, and as it progresses some difficulty of breathing; palpitation and irregular action of heart, often intermittent, with sounds and murmurs distinctly heard when ear is over heart. If pulse does not intermit there is some change,—always some lung trouble, either congestion, bronchitis, chronic pneumonia, or pulmonary hæmorrhage. Likely to be, if well established, hæmorrhages from nose, bronchi or stomach; swelling of the feet, sometimes arms and face; dropsy of chest, sometimes of the abdomen. Quite a good deal of headache, with cerebral congestion and hæmorrhage, vertigo, *muscæ volitantes*, and noises in ears very common. Disturbed sleep, frightful dreams, spleen and liver suffer enlargement; dyspepsia or disordered digestion. The features are contracted but puffed; cheeks flushed and of a purple or livid hue; lips congested or purple; eyes bright, watery. As the disease progresses the patient becomes very feeble; suffers from the slightest exertion, mental or physical, or from the least exposure to cold or wet, or from the slightest error in diet. Death may take place from debility, or rupture of the heart, or from some of the complications that are so numerous in brain, lungs, liver, spleen, kidneys.

On putting ear to the chest, over the first sound of the heart, systolic or contraction, or over the second sound, diastolic or opening or dilatation murmurs are heard. These murmurs may be harsh, or rough, or cooing, or whistling; or musical—modifications of little importance. Of whatever character a murmur may be, it is caused by a change or alteration of the valves, or orifices, or great vessels, producing an organic murmur. There is a functional or inorganic murmur produced by a diseased condition of the blood,—the lining membrane of the valves and orifices of left side of the heart much more frequently than the right. Signs of disease of the valves may be thus briefly given:

The apex of the heart in the act of contracting, striking the ribs, is called the systolic sound. Two inches and a half above it you hear a gurgling sound, which is called diastolic, from the heart dilating.

Aortic Obstruction.—Systolic murmur, often rough, at second intercostal space and along the aorta, subclavian, etc. Pulse regular, small and long.

Aortic Regurgitation.—Diastolic murmur usually smooth at second space and downward along sternum to apex. Pulse regular, jerking and collapsing.

Also, in aortic disease, the left ventricle becomes hypertrophied, and the apex of the heart is displaced downwards.

Mitral Regurgitation.—The most common form of valvular disease. Systolic murmur at and to the left of the apex beat. Pulse irregular in force and frequency, soft and weak.

Mitral Obstruction.—Presystolic murmur at inner side of apex, frequently accompanied with thrill. First sound sharp. Pulse usually regular, but soft and weak.

In mitral disease the right ventricle becomes hypertrophied in consequence of obstruction to the passage of blood through the lungs, and the apex beat is displaced to the left of its normal position.

Tricuspid Regurgitation.—Usually comes on after mitral obstruction or regurgitation. Systolic murmur near ensiform cartilage. Pulsation in jugular vein.

Semilunar valves of pulmonary artery may be supposed to be diseased when the blowing murmur can be traced from the middle of left edge of sternum up towards left clavicle, and when this murmur cannot be heard in subclavian or carotid arteries. Pulse remaining unaltered.

To determine accurately systolic or diastolic character of a murmur, the apex beat or the pulse should be carefully noted during auscultation. If systolic, the murmur must be synchronous with carotid pulse; if diastolic, after it; if presystolic, just before it and running up to apex beat.

Treatment.—There are four indications in the treatment to be faithfully carried out: to abate any inordinate excitement; to ward off or relieve all complications, as the result of the cardiac disease, as lung congestion, pneumonia, hæmorrhage; congestion of liver, kidneys, spleen, dropsy; to nourish, tone and strengthen the heart; to administer alteratives and tonics to remove the cause upon which it depends.

The use of digitalis, aconite, belladonna, cactus grand. and bromide of potassa are to be used cautiously. They are of great value. We must support the powers of life well and relieve all complications as they arise. Light but highly nutritious diet, with proper attention to bathing, clothing, and a removal of all

causes that would be likely to enfeeble the heart, brain; a vegetable alterative and tonic course, keeping the irritating plaster applied over heart.

In order to more clearly diagnose organic affections of the heart, the following rules might be borne in mind:

1. In health, the cardiac dullness or percussion measures four square inches, or the closed fist of the patient; any dullness beyond that indicates either an increase in the size of the organ, or dilatation, or else a distension of the pericardium with a fluid.

2. The heart has two sounds and two intervals; the duration of each in health is the same; the first sound is when the apex strikes the ribs in the act of contraction, called systolic, two and a half inches above; after the interval is heard the heart opening, blood rushing, called diastolic. The first sound, systolic, an interval of some length, then diastolic, then interval, etc. The apex usually strikes the ribs between the fifth and sixth, a little below left nipple.

A friction murmur, synchronous with the heart's movements, indicates pericardial inflammation.

A bellows murmur with the first sound, heard loudest over the apex, indicates mitral insufficiency.

A bellows murmur with the second sound, heard loudest at the base, indicates aortic insufficiency.

A murmur with the second sound loudest at the apex, indicates either (1) aortic disease, the murmur being propagated downward toward the apex; or (2) roughened auricular surface of the mitral valves; or (3) mitral obstruction, which is always associated with insufficiency, when the murmur is double, or occupies the period of both cardiac sounds.

A murmur with the first sound, loudest at the base, and propagated in the direction of the large arteries, is more common. It may depend (1) on an altered condition of the blood, as in anæmia; or (2) on dilatation or disease of the aorta itself; or (3) on stricture of the aortic orifice, or disease of the valves, in which case there is insufficiency, then the murmur is double, or occupies the period of both sounds.

Hypertrophy of the heart may exist independent of valvular disease. When it does take place, it is usually the left ventricle that is affected, and usually in connection with mitral or aortic disease; in the one the hypertrophy is uniform with rounding of the apex; in the latter there is dilated hypertrophy with elongation of the apex.

In addition, the nature of the pulse at the wrist; the nature of pulmonary or cerebral symptoms.

Congenital Heart Disease—Is quite common, and has its origin in an arrest of development or malformation of some

part of the organ, or in inflammation of its growing structures, or in a combination of causes; and it is really impossible to lay down rules for their diagnosis.

CYANOSIS.

The most common form of congenital heart disease, characterized by a blue or purple appearance of the skin, arising from some deficiency or defect in the construction of the heart, as from the septum not arriving at its full development at birth; or from permanence of the foramen ovale allowing a passage of blood between the auricles; or from the origin of aorta and pulmonary artery from a single ventricle; or from contraction of the pulmonary artery—any condition permitting a mixture of venous and arterial blood.

Symptoms.—Blue color of skin, coldness of body, temperature often as low as 71° Fahr.; great difficulty of breathing, fainting on movement or excitement, violent palpitation; tips of fingers and toes become bulbous, nails incurvated; imperfect development; dropsical effusions, mostly congenital; if so, patient blue all over, often present at the termination of valvular disease.

Treatment.—If it is a congenital affection, the best plan is to be cautious in any opinion of the case. Keep the little patient warm, nourish with mother's milk, or otherwise administer one or two drops of tincture of digitalis three times a day; and in a large proportion of cases, in a few weeks or months, the digitalis will contract the orifice and cure the affection.

When it appears in chronic organic disease of the heart, alleviate the symptoms as well as possible; give plain, nourishing food, mild tonics; warmth and warm clothing; rest, avoidance of fatigue, freedom from mental excitement.

RUPTURE OF THE HEART.

Rupture of the heart may occur from previous disease, or it may be caused by external violence. It may take place at any part, left or right side, walls of ventricles, rupture of valves, etc. Laceration of muscular walls, generally due to fatty degeneration, or to rupture of aneurism in ventricular wall. It is a common termination in dilatation with thinning of its walls. Embolism of the blood, such as we have in acute laryngitis, pneumonia, and also in ergotism in labor, as well as that due to eating bacterial food, as sausage, is a common cause of rupture. The condition of embolism is so common from sluggish livers, non-aeration of blood by lungs and skin, and the muscular structure, feeble by excesses and tobacco, that rupture of the heart as a cause of sudden death is fearfully prevalent.

CANCER OF THE HEART.

Cancer of the heart is extremely rare; it may be suspected if the diathesis exists, and there is pain anterior and posterior. Its most common form is as an infiltration of the muscular walls, or as a separate growth in the form of a tumor. Cancer of the pericardium is more common than in or on the heart itself, and usually of the acute or medullary form.

Enforce general treatment for *Cancer*.

AORTITIS.

Acute inflammation of the aorta is a very rare affection, and when it exists it is always either dependent on or associated with rheumatism.

The symptoms are very obscure; great and general uneasiness, followed by rigors and a fever; extreme difficulty of breathing, with an impending sense of suffocation; excruciating pain and violent pulsation in vessel; palpitation violent; loud systolic sound; pulse may be unaffected.

The appearance after death exhibits great changes in the coats of the vessel, the result of inflammatory action: often structural lesions or degeneration of tissue; osseous, amyloid, fatty, calcareous and other forms of degeneration.

Treatment.—Free purgation, active diaphoresis by injecting hypodermically one-third of a grain of pilocarpin. Wet cupping over heart, followed with hot poultices, veratrum viride, opium and quinine, same as in *Pericarditis*. Then salicylate soda, colchicum, iodide potass, and general use of remedies for *Rheumatism*.

HYDROTHORAX.

The presence of water in the cavity of the chest may be either the effect of pleurisy or obstruction in the heart, as in valvular disease. When a result of pleuritic inflammation it is due to effusion; when due to organic disease of the heart exosmosis takes place.

The presence of water in the cavity of the chest is easily made out. There is great difficulty of breathing when the patient lies down, in which position the lungs are clear from top to bottom; being permeated with air they float on the top of the water; sit the patient up and percuss, there is dullness at the base of the chest, extending upwards. If the patient is of a spare habit a splashing sound may be detected by shaking the patient in sitting posture.

This form of dropsy admits of removal without operation in the large percentage of cases if due to pleurisy; but if it depends on organic disease of the heart the water may be removed, but returns again and again.

Treatment.—In the cure of all cases of dropsy it is of paramount importance to maintain a high standard of health, to keep the blood rich in fibrin and red corpuscles, with the best of diet and remedies to aid digestion and promote assimilation.

In all cases the patient should be placed upon infusion of digitalis for a week, to astringe the blood-vessels and unlock the absorbents, and then diaphoretics, diuretics and hydragogue cathartics administered, such as warm baths, jaborandi, squills, broom, nitrate potassa and elaterium. That class of remedies failing, alteratives and absorbents, as iodide of potass. See *general treatment for Dropsy*.

ANEURISM.

A swelling, pouch, sac or tumor, caused by the dilatation of the coats of an artery. It may embrace one or all the three coats of the vessel, and may extend a long distance. When all the coats of an artery are dilated, but not ruptured, it is called a *true aneurism*. Dilatation, with rupture of one or more coats, constitutes a false aneurism. The internal and middle coats are frequently ruptured or removed in patches by the detachment of foreign particles or the burrowing of disease-germs; the blood then comes in contact with the external cellular sheath, dilating it into a pouch or sac. The external walls of the tumor in this case condenses, acquires a covering by effused lymph, and becomes thick; and if the patient enjoys average health, the sac will become very firm. The division or rupture or tear of an artery may result in extravasation of blood into the areolar tissue, and thus form a diffused aneurism. Varicose aneurism can only happen when a vein runs over an artery, as when the brachial is punctured in opening a vein. The blood rushes into the vein, rendering it varicose; nævus, or aneurism by anastomosis, so common on the heads of children.

Causes.—The absence of support, inherent weakness of organization, a weakened or diseased state of the walls of blood-vessels, the deposit of morbid matter in the blood on the walls of an artery, as particles of starch, fat, calcaria, tubercle, and these, being washed away by the current of the circulation, leave the spot to which they adhered weak or ulcerated, and impaired the elasticity and vital power of resistance of the vessel; when, if the circulation is excited by mental or physical exertion, as coughing, straining, lifting, hoisting, pulling, rowing, jumping, the force of the circulation presses heavily on the weakened part, and a bulging or aneurismal sac is formed. Morbid states of blood are favorable for aneurismal tumors. If they arise from local violence, they are called traumatic, and spontaneous when they arise without local injury—a distinction of no moment.

Symptoms.—A sac, pouch, swelling or tumor, pulsating synchronously with the action of the heart, located over an artery, which, when equally compressed, is emptied of its contents, and when pressure is removed the blood rushes in with a whirring sound. They tend to increase in size, and if near the heart give rise to different morbid states of that organ.

Treatment.—Men, from their more laborious mode of life, are more obnoxious to aneurisms than females, and are better subjects for a spontaneous cure by coagulation, as their blood contains more fibrin and a much greater percentage of red corpuscles than women; we shall briefly enumerate the various methods of treatment before speaking of nature's method.

A ligature applied to the main trunk of an artery cuts off the circulation, the pulsation in the sac at once ceases, a coagulum is formed, which, if vital force is good, is gradually absorbed, and the whole mass degenerates into an impervious cord, the circulation being carried on by the collateral branches. This may all look well, but if there is disease of the artery, as there often is, a union of its internal coats may not take place, and when the ligature sloughs off in one or two weeks, secondary hæmorrhage and death; besides, it is only on the thigh in Scarpia's triangle, or in the arm over the brachial or about the head that it can be applied. It is not adapted for the internal forms which are so common.

Pressure, where it can be applied, is of great efficacy in diminishing the flow through the sac. It gives the fibrin of the blood a chance to coalesce and cause coagulation, which is ultimately absorbed. Electricity, applied by means of several needles inserted into the aneurism, produces instantaneous coagulation of its contents. It is best adapted to small tumors.

Nature's method is the best. Fibrinize the blood, restrain the circulation, and coagulation is certain. Begin by the administration of a rich animalized diet, beef, eggs, milk, cream. Improve the digestive organs and increase fibrin in blood with nitro-muriatic acid and compound tincture cinchona, or aromatic sulphuric acid and quinine. After a few weeks, enjoin absolute rest of mind and body, and put patient on digitalis to keep pulse at sixty, steady. Fresh rich food, no alkalies, nor do not use aconite, nor veratrum viride, nor belladonna; for however valuable their action on the heart may be they keep up fluidity of blood. After the pulse has been kept at sixty, under care of a skilled nurse for one week, use either ergot or carbolic acid internally for about a week, and coagulation of contents of the sac is almost certain. Under such treatment patient must retain the recumbent position, as that slows the heart's action about twelve per minute. The digitalis must be administered in from eight to fifteen drops in water, every three

hours, never permitting contractions to exceed sixty. This drug not only slows the heart, but contracts or astringes the heart, arteries and veins; their calibre is smaller, and the tendency is, for the blood, if rich enough, to clot in hollow organs, as the aneurism. This clotting begins on the walls of the aneurism and gradually merges to the centre until a clot forms. The ergot or carbolic acid must be very carefully watched, and discontinued if any bad feelings are experienced about the heart. Of all methods this is the best.

CARDIAC ANEURISM.

Aneurism of the heart is found in two forms:

1. *The acute variety* depends on a laceration of the endocardium and muscular tissue, through which the blood passes to form a pouch. In this pouch fibrin is deposited, while at its entrance is a fringed margin with vegetations attached.

2. *The chronic form* results from some inflammatory condition of muscular fibre or endocardium. Walls of sac consist of endocardial and pericardial membranes unbroken, while the muscular fibre seems to be replaced by a fibroid tissue. Either kind gives rise to obscure and uncertain symptoms; passage of blood into sac may cause a murmur. Death usually occurs suddenly from rupture.

Aneurism of coronary arteries is not infrequent.

ANEURISM OF THORACIC AORTA.

The symptoms of this form of aneurism are often obscure in their early stages, bearing a strong resemblance to disease of the heart. If the aneurismal tumor be large and is developed quickly, there is disturbed action of the heart, with some modification of radial pulse; dullness on percussion around portion of vessel from which aneurism springs; cough; wheezing; difficulty of breathing; spitting of blood; difficulty and pain about back and chest; superficial veins of chest and neck swollen. If the aneurismal tumor becomes very large and pulsating, rises out of the chest, producing protrusion of sternum and ribs, then the diagnosis is easy. If the aneurism presses upon the trachea, there is difficulty of breathing and cough; when on one or both recurrent laryngeal nerves, aphonia, with troublesome cough, severe paroxysms of laryngeal suffocation, pain coming on at intervals; when on œsophagus, symptoms of difficulty of swallowing, engorgement of absorbent vessels and glands, inanition, and symptoms of stricture. If the aneurism is in the ascending, near to the heart, the patient suffers from angina pectoris, resulting from pressure on the plexus of nerves, ramifying on each side of the aorta and communicating freely with the cardiac ganglia and plexuses of the ventricles.

Contraction or dilatation of pupil on the affected side, according as pressure is sufficient to irritate or paralyze branches of sympathetic nerve. Often blowing murmurs can be detected. If the heart be compressed by a tumor, so as to impede the action of the valves, a systolic or diastolic murmur will result. Pressure on aorta or on pulmonary artery may produce a murmur. In false aneurism there is generally a murmur both with entrance and exit of blood into the sac; or there may be one loud and rasping murmur from the passage of blood over the roughened inner surface of the vessel. In true aneurism, or the mere dilatation of a part of the wall, murmurs seldom audible. Even a small opening into the canal of an artery into aneurismal sac, and a roughened state of the arterial tunics from degeneration, will give rise to a murmur. A peculiar thrilling or purring tremor is often felt over the sternum.

The termination may be death from rupture externally, or into pericardium, or into the pleural cavity, or into the trachea, or into the bronchial tube; or the patient may die from exhaustion consequent upon long-continued suffering, or there may be a fatal destructive inflammation of lung, owing to the compression of pulmonary vessels or pressure on pneumogastric.

ANEURISM OF ABDOMINAL AORTA.

Very common in ladies from falls, lifts, strains, and bearing down efforts in labor. Patient describes it as a feeling as if something had given way; most generally met with just behind stomach. It exists from a mere distension of the descending aorta to a large sac; machinist, especially those pulling long heavy bars of steel are common sufferers.

Empty the bowels; see the patients before they partake of food; lay them on back, knees drawn up, and the tumor can be easily made out. If large enough to interfere with the vermicular movements of the stomach, the case is not so favorable for a cure. If that organ is undisturbed, treatment will soon do its work in effecting a speedy cure.

In aneurism in chest or abdomen all bodily and mental excitement must be avoided, all prominent symptoms alleviated; generous, reparative diet to be allowed; not over one pint of fluid to be used per day; great attention to the secreting and excreting functions, and in the abdominal, the method of treatment by slowing the heart and fibrinizing the blood resorted to.

NÆVUS.

Aneurism by anastomosis, or mother's mark, a formation of dilated arteries, veins or capillaries.

Arterial Nævi, met with most commonly in infancy and

youth. The diseased vessels become enlarged, elongated and tortuous, forming tumor variable in size, irregular in shape, spongy, compressible and pulsating—a murmur being audible.

Venous Nævi give rise to irregular tumors of a purple color, which feel doughy, and are diminished in size by pressure.

Capillary Nævi are most common; for the most part they are congenital, begin usually as a red or purplish spot, which gradually spread. They are generally met with on the scalp, or face or neck; rarely on other parts, and involve skin or subcutaneous parts, and of all sizes, from a strawberry up.

Treatment.—When very small and producing no disfigurement, and not increasing in size, they are best left alone, as nature often affects a spontaneous cure by a coagulation and absorption of their contents.

There are several methods of treatment, as removal by the knife, or ligature, which is rarely advisable; destruction with caustics, as brushing it over with ethiate of sodium, or nitric acid, or superphosphate of zinc; electrolysis and coagulation of blood by galvanism, or in the application of remedies to excite adhesive inflammation, as injecting with perchloride of iron, or vaccination with croton oil, or painting with colodion and tannic acid, painting with tincture of iodine.

PHLEBITIS.

Inflammation of veins, with coagulation of blood in them. Nothing so likely to cause this form of partial death as the living germs of disease—the degraded living matter on an imperfectly cleaned lancet or bistoury, dissection wounds, morbid discharges. A very common cause is the lochial discharge from parturient women; hence, physicians, nurses, washer-women are often affected, especially if they have scratches or abrasions about the fingers. In some cases the bacteria are so numerous that the immersion of the hands in the water in which the clothes are soaked is sufficient to excite phlebitis.

To the veins that take up this living matter it acts as a powerful depressent, and induces not only a coagulation of the contents of the vein, but an active inflammation of its coats; the bacteria or micro-organism that causes the coagulation, also, by rapid increase, disseminates itself throughout the blood.

The cause is the degraded living matter in the germ bacteria. No other germ produces such pathological results; hence the secretions of erysipelas, puerperal or lochial, or furuncular patients are most virulent.

Symptoms.—The veins at once, that is, after the inoculation or absorption of the living matter, become very painful, thick, cordy, swollen, pain aggravated by movement or pressure; stiffness and redness supervene along the entire course

of the affected vessel, first extending to the elbow, then up the arm; very prone, if not energetically treated, to terminate in suppuration; if so, there are rigors and flying pains in different parts of the body, with great constitutional disturbance and fever of a nervous or irritative type. When suppuration and abscess take place the coats of the vein ulcerate, and the contained clot is discharged by means of an abscess. The bacteria or germ-poison does not produce coagulation; it mixes with the blood, rendering that fluid a river of disease-germs, affecting the entire body, and giving rise to bacterial deposits in weakened parts, with embolism and abscess in vital organs, as the heart, lungs, spleen, liver, kidneys, joints and areolar tissue. In some cases a clot is carried from the vein to the heart, and causes sudden death.

Treatment.—The general management of such a case is of great importance; the suction and cauterization of the wound, the application of a solution of muriate of ammonia, and poultices with yeast and salicylate of soda. If the vein has become engorged, thick, cordy, the application of a row of leeches along it to empty it of its bacterial contents, and hot fomentations of ammonia or permanganate of potassa; or if the clot in vein is so firm that the diseased blood cannot be drawn off, then to paint along the course of the entire vein with creosote, and then poultice with alkaline, antiseptics, as sulphite of soda, tincture iodine in lime-water, etc. The creosote permeates the walls of the vein, kills the bacteria, and the blood regains its fluidity. It penetrates better than carbolic acid, and is just as effectual in annihilating the micro-organisms. Internally, acro-narcotics, as opium and belladonna in alternation; the former to relieve pain, the latter to maintain the fluidity of blood. Otherwise the case should be treated with a free use of antiseptics, those possessing alkaline properties, as ammonia, chlorate or permanganate of potass—sulphite of soda or lime should have a preference. Suitable doses of quinine should also be given. The patient should be well nourished with essence of beef, eggs, cream, lime-water and milk, and a total alleviation from suffering.

Other Antiseptics sometimes used—salicylate of soda, carbolic acid and tincture of iodine.

PHLEGMASIA DOLENS.

Phlegmasia dolens, or milk leg, is due to the micro-organism bacteria. During parturition, especially if labor has been severe or prolonged—a condition in which the vital integrity of the uterus has suffered; or it may be a case in which ergot has been given, perhaps rather freely or injudiciously, which not only causes contractions of the uterus, but in itself supplies

the blood with bacteria, thus engendering embolism; or it might be a uterus contracted firmly on a placenta or clot, which squeezes diseased products into sinuses of left side, which is the weakest, causing irritation of ovary and poisoning of veins of the left leg, coagulation of their contents; embolism takes place within the external iliac and femoral veins, causing a brawny, painful swelling of the entire extremity.

Symptoms usually commence from one to six weeks after labor. On its first appearance there are rigors, fever, thirst, nausea; great pain, swelling, loss of motion of the affected extremity; limb hot, tender, non-œdematous, but swollen and twice its natural size, of a pale white color, tense and elastic, having a glazed and shining appearance; and even after acute symptoms have subsided, the limb remains enlarged for many weeks, even months.

In some cases of uterine cancer the same condition may be induced.

Treatment.—Here we have some difficulty, as we are unable to empty the veins by leeches, and the affected vessels are too deep-seated to be affected by creosote, so that we have to be satisfied with shampooing the limb twice daily with vaseline or ozone liniment, manipulating up to the body in keeping the entire extremity encased in a roller from the great toe to the groin, and the roller kept saturated with a solution of acetate of ammonia, or vinegar and nitrate of potassa with tincture of opium, covering all over with oiled silk to prevent evaporation, keeping the limb higher than the body. Internally, opium freely to relieve pain, and belladonna to maintain fluidity of blood; otherwise, the treatment consists in the judicious use of antiseptics to destroy the bacteria, and a nourishing course of treatment to sustain the powers of life.

When the living matter of our own bodies is altered into a disease-germ or bacteria, the germs are naked, that is, they are unprotected by a cell wall, so that they are exposed to the direct influence of any antiseptic that may be brought to bear on them; while, on the other hand, the normal bioplasms of the tissues are well protected by the material around them. In other words, an efficient protection surrounds all high-graded living matter; so that in the use of antiseptics we soon see big results in germ diseases. Select an alkaline antiseptic, as acetate of ammonia, carbonate of ammonia, chlorate or permanganate of potassa, sulphite of soda, chloride of lime, iodide of potassa, tincture of iodine, vegetable alteratives and tonics.

During the febrile stage, the diet should consist of lime-water and milk, in alternation with beef tea; when fever subsides, diet should consist of animal food, beef, mutton, poultry, abundance of fresh vegetables and fruit.

VARIX.

A varicose or dilated condition of veins. The predisposing cause is inherent debility, and the exciting cause, anything that retards the return or flow of blood to the body, as standing, loaded bowels, pregnancy, corpulence, straining.

In the treatment of varix, improvement of the general health, a regular action of the bowels to be procured; tonics and good diet. Our best remedy, both internally and locally, is hamamelis. Locally, mechanical support, as bandages, elastic stockings. Obliteration of veins not attended with any good results, as the deeper-seated vessels become implicated.

Varicose Veins are most commonly met with on the leg, and on the spermatic cord and testicle.

They are invariably the result of inherent debility. When varicose veins appear on the leg, the deeper seated veins are usually first affected; the deeper seated and not the superficial veins being thus first implicated with valvular inefficiency and dilatation—and then these two conditions spread to the superficial. This condition harmonizes with the special arrangement of the venous system of the lower extremity.

These facts throw more light on the subject of varicose veins, and elucidate a newer and more correct treatment and a better choice of remedies.

The Treatment of Varicose Veins of the lower extremity should consist in the removal of the cause, if admissible, and a course of alteratives and tonics, with the very best of diet.

The affected limb should be bathed morning and night, and rubbed well towards the body. After being thoroughly dried, it should be freely saturated with some astringent wash, such as a decoction of witch hazel, or white pond lily, or white oak bark. After one of those remedies has been well rubbed in, limb dried, then encased in a fine stocking, then over and above all an elastic stocking or bandage should be constantly kept on, so as to give support and hasten the languid circulation onwards. Remedies should be changed at least every week.

DISEASES OF THE ORGANS OF RESPIRATION.

OLFACTORY NERVE.

The first cranial nerve is not of such vital importance as the auditory, or optic. In the Caucasian, it may be said, to exist in a refined but very rudimentary condition; whereas in the colored races it is peculiarly large and well developed, probably two-thirds greater than in the white. In animals, and some fishes, as the shark; it is immense in the latter, being reflected over twelve square feet of mucous membrane. The peculiar structure of the cavity of the nose shows that there is one nerve for sensation and another for olfaction—that the lower portion of the nose possesses epithelial cells; the upper portion pigmentation, the latter lying in grooves. In ordinary quick breathing little air enters these olfactory channels, for most of it passes through the posterior nares into the pharynx. If we desire to smell keenly, we instinctively resort to the use of the dilator muscles of the nose, whereby the olfactory channels or grooves are opened or enlarged. This nerve gives us protection against poisonous gases, but does not in all cases prevent their absorption, although not near so active as the salivary glands of the mouth.

The specific stimulation of the olfactory nerves are, odorous gases, scents, and odors of flowers, which come in contact with the flattened-out ends of the olfactory, causing a peculiar vibration in the molecules of the nerve, which is transmitted to the brain, where it is appreciated. The sense of smell is often lost in catarrh polypus in the olfactory channel, also, in injury to the head or nose; disease of brain may exalt or destroy smell. Inflammation of nerve is rare. The nerve may be absent or but very rudimentary, or it may be covered over with lymph, or destroyed with ulceration; and owing to these states, there

may be an entire absence of smell, *anosmia*; or from a high state of nervous development the sense may be very keen, excessively sensitive, *hyperosmia*.

As far as our present knowledge goes, there are only two remedies which have a decided and antagonistic influence on olfaction. Strychnine will exalt, while morphia will impair and deaden it. Strychnine rubbed up in some inert body and used as a snuff, or taken internally in suitable doses, wonderfully increases the keenness of the sense; the snuff is the most effective. It acts so well that it causes a sensitiveness to pungent odors, almost amounting to pain; whereas, morphia confuses the appreciation of odors to such an extent as to produce a kind of chaos. The olfactory nerve is narcotized, and odors appear at an enormous distance. Other remedies possessing analogous properties have a lesser influence; belladonna causes dryness, and pilocarpin the opposite state; both conditions unfavorable for good smell.

ACUTE NASAL CATARRH.

Inflammation of the mucous membrane lining the nose, frontal sinuses, throat, accompanied with fever. The cause is usually exposure to cold or wet.

Symptoms.—Languor, lassitude, debility; pain in head; aching in back and limbs; fever, thirst, loss of appetite, rapid pulse, increased heat, coated tongue, discharge from nostrils; profuse lachrymation, hoarseness, sore throat.

In addition to those symptoms, the discharge from the nose is liable to become acrid, and coming in contact with the lips causes an eruption of fever blisters or herpes. In a few days symptoms will subside and pass into a subacute form, and tonsillitis or bronchitis may supervene, and the patient recover. If he happens to be feeble, or possess a tubercular habit, it may pass into ulceration, and a chronic form be set up. In all cases there is a degradation of the living matter that supplies the mucous membrane of the nostrils, frontal sinuses, posterior nares, and throat, into the disease-germ, amœba, which, if not speedily relieved, will produce grave changes.

Treatment.—Our dry, highly oxygenized atmosphere is favorable to the prolongation of cases of ordinary cold or acute catarrh, so that our treatment should be active. If the tongue is coated, an emetic, open bowels, give a warm alkaline or alcoholic vapor bath. Patient should go to bed in a room whose temperature is 75° Fahr., and the atmosphere of which should be loaded with steam or vapor, so as to diminish the oxygen, heat to feet, and general treatment for fever, aconite and belladonna. As fever subsides, tonic course, quinine and mineral acids, with very nutritious food. If there is a recur-

rence, a general alterative course, as *saxifraga*, in alternation with glycerite of ozone, or *kephaline*, for a few months.

CHRONIC CATARRH.

A severe or else repeated attacks of inflammation of the lining membrane of the nose, sinuses, posterior nares, larynx and bronchi, so devitalizes, modifies, changes and degrades normal living matter into a diseased germ,—the *amœba*, which is simply a degradation of the normal bioplasm that nourishes the lining membrane of the respiratory mucous membrane, that gives us rather a complicated disease, one both contagious and infectious. We also find the disease-germ in the mouth, urethra, vagina, but always more perfectly developed and in larger quantities in the air passages.

Chronic catarrh, then, may be defined to be chronic inflammation of the Schneiderian membrane, with this change of its own living matter or matter concerned in its nutrition, into the disease-germ, *amœba*. It is most erroneous and unscientific to assert that it is caused by syphilis or tubercle. Those disease-germs may impair the vital stamina of the patient, but cannot produce the *amœba*.

Our highly oxygenized atmosphere, our very variable climate, the extreme susceptibility of our people to climatic changes, with our violent winds and atmospheric currents, absence of trees, etc., render our people very liable to catarrhal affections. The most careful microscopical examinations of an immense number of cases fail to exhibit any germ but the *amœba*. When it occurs in a young or tubercular subject, the tissues being soft and not very vital, the *amœba* of catarrh eats up the structures rather voraciously, and as soon as they reach the cartilages of the nose, all their proper nutriment being gone, (for they cannot live on cartilage), and the vital powers being very low, the *oidium albicans* makes its appearance; then we have that pungent, indescribable, fœtid odor characteristic of *ozæna*. When the Schneiderian membrane and frontal sinus are alone implicated, with no appreciable odor, it is termed catarrh; when the *amœba* have crept up the eustachian tube, *aural*; when they have penetrated down the fauces and larynx, *laryngeal*; when they have moved still further downwards on the bronchi, *bronchial*; asthmatic when they gnaw the periphery of nerves in the circular muscular fibres of the rings of the bronchi.

Aromas or parasitical states, such as the bacilli of hay, the mycelia of roses, ragweed, and other vegetable germs, are not capable of living in human blood; nevertheless, they can blight normal bioplasm of the respiratory mucous membrane, and thus cause the appearance of the *amœba*. Hence, catarrhal conditions are named after those special vegetable agents. Diseases of the

respiratory mucous membrane are very prevalent, each capable of causing tuberculæ: (1) by reflex action; (2) by the amœba entering the blood.

Catarrh is often the starting-point, as it is the most common of the entire class. When it takes place, its offspring, the amœba, begins to enter the blood and produce a special diathesis of its own. Its chief characteristics are languor, lassitude, debility; a peculiar pasty or doughy appearance of the skin; pains in the limbs; headache, with a sense of tightness across the forehead; excessive muco-purulent discharge from the nostrils, or trickling down the throat, (which creates hawking), loaded with amœba; or if there is much oxydation, the discharge may dry up and become impacted in the nostrils. If the amœboid colony runs up the eustachian tube, it will cause deafness; if it moves downwards, (for it is a living mass), hoarseness and aphonia; if still further down, on the bronchial tubes, increased hawking, cough, emaciation and discoloration of the skin due to imperfect oxygenization of blood; if down the œsophagus, dyspepsia. As it is very liable to cause amyloid degeneration of liver and kidneys, there may be some swelling of cellular tissue and œdema of ankles.

It is not only a contagious and infectious disease, but loathsome, and liable to give rise to so very many other affections, as epilepsy, consumption. It is nearly identical with glanders in the horse; it is simply a difference in size and virulence of the germ. In human catarrh the amœba is a microscopical dwarf; in glanders in the horse it is a giant.

Of all the disease-germs the amœba is the most interesting to study. It can be seen with a low power, its movements and habits can be seen so accurately; even its mode of nutrition, opening and closing themselves to receive foreign particles, inclosing and appropriating them and even imbedding them in its very substance. As they enter the blood they no doubt impair the red corpuscles, and cause a peculiar form of anæmia.

Treatment.—To treat catarrh successfully the patient must have the best of diet, secretions regulated, warm clothing, and be placed upon alteratives and tonics for a few months to destroy the amœba in the blood. Change the diathesis and build up fresh blood. Such alteratives as ozonized saxifraga, compound iodide potassa; and for tonics, glycerite of ozone, compound tincture cinchona and mineral acids. Irritating plaster to nape of neck, two points, one inch square each, to stimulate the origin of the olfactory nerve in the medulla. One or more thorough washings-out of the nasal cavity with the ozonized catarrh fluid, ozone et chlorine, will bring away millions of the amœba, and very frequently in itself effects a cure. Still, it is a good plan to repeat in three or four weeks. Meantime, if the case is a bad

one, the patient could douche out the nostrils every night with an infusion of golden seal (tepid), to which some borax is added, say a tablespoonful of pulverized golden seal, one teaspoonful of borax, half a pint of tepid water.—Mix. Infuse a short time, strain carefully, so that there may be no particles, and use.

This, in no case, should supersede the ozone et chlorine or catarrh fluid, for that is one of the most reliable of all remedies; for, if the nasal passage is once well washed out with that invaluable wash, catarrh in nearly every case disappears. It acts like magic in removing immense colonies of the micro-organism, the amœba from the nasal canal, and a return to good health is very rapid and permanent.

OZÆNA.

Chronic inflammation of the internal lining membrane of the nostrils, with ulceration down to cartilage, and the development of the disease-germ *oidium albicans*—common in old cases of catarrh, in tubercular and syphilitic cases, and also in necrosis and foreign bodies in the nose.

Symptoms are the same as catarrh—uneasiness, stuffing in head, headache; profuse muco-purulent discharge, often tinged with blood, intensely fetid and loaded with disease-germ.

Indeed, the odor is intense, pungent; formation of flakes of hardened mucus and germs; caries or necrosis in broken down subjects.

Treatment.—Same as chronic catarrh—use of nasal douche daily, with catarrh fluid every two weeks, and daily either the lotion of borax and golden seal, or a solution of permanganate, or carbolic acid and tincture of iodine. For the purpose of deodorizing the nostrils, the following might be inhaled for a minute every two or three hours:

Iodoform, as much as can be dissolved in ether; a saturated solution, one ounce; chloroform and alcohol, of each half an ounce; carbolic acid, one drachm. Mix. Use only for inhaling at short intervals. If there be any evidence of acquired or constitutional syphilis from the long bones or copper-colored mucous covering of the arch of the mouth, same treatment as for syphilis, not omitting the use of the douche and antiseptics.

The diet is to be generous to a fault, consisting of animal food, boiled fish, oatmeal and cream, eggs, fruit and vegetables. As alteratives, the *saxifraga* compound or *phytolacca*; and as tonics, glycerite of ozone, cinchona and aromatic sulphuric acid, glycerite of kephaline.

INFLUENZA.

An epidemic disorder, accompanied with all the symptoms of catarrh and fever; contagious and infectious. It is, no doubt, caused by some meteorological; electrical condition of earth and atmosphere acting on vital forces somewhat depressed. Whatever it may be, it is capable of altering the normal living matter concerned in the nutrition of the lining membrane of nose, fauces and bronchi into the disease-germ *amœba*.

It must enter the blood speedily, because there is great prostration and debility; running from eyes and nose, frontal headache, cough, restlessness, rigors and a high fever, often delirium.

Symptoms are those of an aggravated type of fever; the rigor is intense; the pain in head, back and calves of the legs is violent; heat very great; respiration and pulse high, secretions depraved; coryza, sneezing, mucus, then profuse muco-purulent discharge from nose loaded with the disease-germ; fauces inflamed and swollen; great soreness in throat; hoarseness, harassing cough, with muco-purulent expectoration; shortness of breath; tongue heavily coated; taste perverted; stomach disordered. In addition to these signs of nervous and muscular prostration the case may be complicated with bronchitis, pneumonia and albuminuria.

Its duration is short, from one to two weeks, terminating in an attack of diarrhœa, or diuresis, or profuse sweating.

Treatment.—An emetic of lobelia and boneset, followed by alcoholic vapor bath and mild cathartics; patient to be kept in bed in a warm room with moist atmosphere; aconite, veratrum viride and belladonna administered till pulse is down to seventy; compound tincture serpentaria to excite diaphoresis; warm demulcent drinks, as flaxseed or marshmallow. Antiseptics are the drugs to be relied upon for the breaking up of the disease. Carbolic acid and tincture of iodine internally every hour as in typhoid fever, same formulæ, and the moisture of the room properly filled with the vapor of the same, putting one ounce of each into a small earthen bowl on stove, filled with boiling water. If case is bad, or in great urgency for relief, hot steam vaporisers should be placed at bedside, with antiseptic spray, as permanganate or chlorate potass. If prostration be great, careful nutrition, beef extract, eggs, milk, quinine. Convalescence should be established upon a well-regulated tonic treatment, nutritious diet, country.

Epizootic Affections in the horse are identical with influenza in the human being—in causes, symptoms and treatment, the *amœba* in animals being of a large or giant micro-organism. But suppose this form peculiar to the horse is

communicated to man, we not only have an aggravated form of influenza or catarrh, but the giant amœba brings about chronic inflammation of liver, spleen, kidneys, giving us hæmaturia, Blight's disease, leucocythæmia, dropsy and death; so that in cases of this kind our best modes of nutrition, our most powerful antiseptics and tonics, fail either to destroy the germ or maintain vital force.

Pink Eye is simply a modified form of the epizooty or giant amœba, only affecting the mucous membrane of the eye instead of the nose. There is a scarlet redness of the eyes, quite considerable swelling, intolerance of light. General health is usually bad from overwork, overcrowding, sameness of diet, or else poor food, bad ventilation.

In all such cases an alterative and tonic treatment should be maintained for some months, and the very best of diet that the circumstances of the patient can afford.

EPISTAXIS.

Bleeding from the nose may take place from a variety of causes, such as blows, falls, fractures, plethora. It is a common symptom of congestion of the brain, as in apoplexy; of disease of the heart, liver, kidneys; present in the early stage of fevers, and often due to morbid states of the blood, as scurvy, purpura, leucocythæmia; besides, it often exists or is dependent on a special diathesis.

For the purpose of arresting the hæmorrhage, the erect posture, holding both arms above the head, the application of cold to nape of neck, to cause contraction by stimulating the olfactory at its root in the medulla, the removal of all articles of dress. If not arrested by the above, cold to nose, a cold spray of perchloride of iron or alum in solution, or if no atomizer be handy use douche or syringe, plugging the nose with cotton saturated with astringents; otherwise general treatment as to cause.

Hæmatophilia is a diathesis in which there is a tendency to bleed from nose and other parts. It is a hereditary condition, supposed to be chiefly transmitted by the mother. Boys affected with it rarely live. It usually manifests itself in early life, at dentition or puberty; in females at first appearance of the menses and their cessation. All cuts, scratches bleed profusely; some races are more liable to it than others; due to a defect in fibrin of blood. Nutritious diet, abundance of fresh air, use of digitalis with care, with mineral acids and preparations of cinchona are supposed to overcome it, but it is very doubtful. It is identical with what is termed the hæmorrhagic diathesis.

NASAL POLYPUS.

This is supposed to originate in some constitutional defect, as tubercule, the exciting cause being some irritation, as scratching, pulling hairs, snuff and other irritants.

There are three varieties, each of which is found protruding from the mucous membrane—*gelatinous*, *fibroid*, *malignant*. The *gelatinous* may be slate-colored, like an oyster, or red from an excess of blood-vessels, always soft; the *fibroid* may be pale or red, but hard and compact; the *malignant* may be either medullary or scirrhus; gelatinous most common. Polypus of the nose usually commences from a follicular irritation of the pituitary membrane, and gradually enlarges, until it fills up one nostril and obstructs the other. It gives rise to headache, a stuffing in the head, and an irresistible desire to blow the nose, with no relief in doing so; muco or muco-purulent discharge; frequent attacks of epistaxis; sense of taste and smell greatly diminished, or even lost; if it presses on the orifice of the eustachian tube, dullness of hearing; articulation indistinct; deformity of cheek; obstruction to tears, and perhaps pressure on the brain. If the diathesis is permitted to remain, they are prone to return after their removal.

Treatment.—In all cases enforce a rigid constitutional treatment, same as laid down under *Tubercule*, and then select the best of the various methods of removal, viz.—excision, ligation, torsion, or destruction by caustics. The principal objections to excision are, hæmorrhage, and a return of the polypus; ligation and torsion are free from these objections, but oftentimes difficult of application, for it is not always we can pass a ligature round them, and they very rarely admit of being seized and twisted. Destruction by caustics is slow but very effectual; various snuffs are used for this purpose, as blood-root finely pulverized with sulphate of zinc; blood-root, bayberry, and sulphate of zinc, in proportion to age of patient.

ACUTE LARYNGITIS.

Acute laryngitis is a rare disease, being confined almost exclusively to adult males; women and children almost exempt from this form of inflammation. A slight inflammation or congestion of the mucous membrane of the larynx is common in all ages and in both sexes, as the result of cold, damp, etc.; its signs being, soreness or rawness, hoarseness, and a dry, harsh cough. But acute laryngitis is a grave, formidable and fatal affection, when it occurs in men whose nervous system has been shattered by worry, care, struggle for existence, and involves the mucous and sub-mucous coats. It is a paltry piece of human mechanism that is attacked, perhaps merely the fraction of an

inch, but the inflammation is terrible and rapid in its results; congestion first, effusion of plastic lymph obstructing the chink of the rima glottis, preventing the ingress of air. The predisposing cause is, depression of the great sympathetic, whose branches freely cover the larynx in adult males—the depression being some emotion, desire, affection, passion; the exciting cause, exposure, fatigue, wet, poisons.

Laryngitis, then, being peculiar to persons of a shattered nervous system, comes on very insidiously. At the end of a few hours, violent rigors, fever of a high grade, fauces red, swollen; pain over the cartilaginous part of the throat; great difficulty of breathing and swallowing; patient very anxious; hoarseness, and complete loss of voice; spasmodic exacerbations, with paroxysms of threatened suffocation; long inspirations; peculiar wheezing sound as if air was being drawn through a narrow tube; harsh, brassy cough; difficulty of swallowing; liquids more difficult to get down than solids, as they bring the circular muscular rings into active exercise. Face and neck first flushed, then livid, subsequently purple; eyes protruding; pulse hard and frequent; great distress. Larynx and trachea move rapidly upwards and downwards; all the respiratory muscles brought into powerful action, so the chest heaves violently. Patient grasps at his throat, gasps for breath, gets out of bed, will thrust his head out of window. He soon becomes delirious or comatose, and dies from non-oxygenation of blood. The duration of the affection is from forty-eight to seventy-two hours. Almost invariably fatal.

Treatment.—The importance of active treatment cannot be too strongly insisted on. Immediate relief is indispensable. Rest and quiet; forbid talking. Air of room to be kept at 75° Fahr., very moist, with warm vapor. Extract of belladonna in hot linseed poultices to throat. Inhalation of warm vapor of tincture belladonna and iodine. Diet—cream, raw eggs, extract of raw beef.

Veratrum viride in three-drop doses every twenty minutes; from twenty to thirty grains of sulphate of quinine every two or three hours, between which from a quarter to a half grain of sulphate of morphia. If necessary, open bowels with beef-tea. No debilitating treatment to be used in acute laryngitis—make an effort to guide patient over third day and run it into chronic laryngitis, from which he will recover.

CHRONIC LARYNGITIS.

This is a very common form of laryngitis. Membrane lining laryngeal cartilages becomes thickened, ulcerated, also involving the fauces and uvula.

It may be caused by cold, damp, exposure, exertion, inhaling

noxious gases, etc., and those conditions intensified by morbid states of blood, as tuberculae, syphilis, mercury, lead, amœba of catarrh, and want of volition in harmony with exercise of vocal cord and larynx in clergymen. The ordinary symptoms are, general debility, cough, expectoration, hoarseness, loss of voice, with ulceration of the mucous membrane of the larynx, fauces. The different varieties are to be recognized by the following land-marks:

Simple Chronic Laryngitis, by soreness, rawness, redness.

The Syphilitic Form, by its copper-colored appearance, and dry huskiness.

Mercurial Form, by its dingy, metallic hue, and peculiar factor of breath.

Tubercular Form, by its mottled appearance and diathesis.

The profession or avocation of the patient will guide us as to the others. Either of the forms may give rise to thickening, warty excrescences, and small polypi on different parts of the larynx, which aggravate the difficulty, cause impediment to the entrance and exit of air, and impairment or loss of voice. The sputum of chronic laryngitis is loaded with amœba, which would necessarily cause it to be contagious and infectious.

Treatment.—General principles must guide us in its different forms. Skin to be attended to by daily baths and friction; bowels to be seen to, clothing to be woolen; appetite to be stimulated, and diet to be rich in blood elements and very generous. Mouth and throat gargled with a wash of borax, chlorate or permanganate of potassa, three times a day. Atomized spray, warm vapor once a day, consisting of carbolic acid and tincture of iodine, or chlorate of potassa, or some other antiseptic. The use of demulcents, as gum-arabic water, elm water, flax-seed tea, marshmallow, white of eggs, and common salt are to be recommended. Aleratives, as compound syrup of yellow dock, ozonized saxifraga, phytolacca, iodide potassa, and tonics, as cinchona, ozonized glycerine, ozone-water, nux vomica. Tonics before meals, alteratives two hours after. Two points of supuration to be kept active by the irritating plaster on side of spine below the nape of neck.

Special Treatment as to Cause.—Muriate of ammonia in the simple form; iodide potassa, nitric acid and compound tincture cinchona, ozonized phytolacca in the syphilitic; ozonized glycerine, compound hypophosphite of potassa, tincture iodine in the tubercular; iodide of potassa in the mercurial; ozonized catarrh fluid, if due to catarrh. If no cause can be ascertained, then a general alterative and tonic course should be inculcated and carried rigidly out; change of air, of locality, diversity of scene, every possible means adopted to build up the general health.

LARYNGITIS CLERICORUM.

A form of laryngitis common among a class of clergymen and other persons who use their voice in a sing-song or monotonous way, without the will harmonizing with the act of volition. The exercise of any of the voluntary muscles, without the will being in unison or harmony with the act, is invariably attended with degeneration or disease.

The vocal cords are made up of a series of fine muscles, abundantly supplied with nerves from brain, spinal cord and great sympathetic, to enable man to express his thoughts. The brain gives the stimulant, the nervous energy, and thus gives the motive power; but this motive power must be in perfect co-operation with their exercise—a will, an intellectual effort with volition in the delivery of a discourse, if it is duly carried out, and all ranting avoided, the vocal cords will improve in their vital integrity.

The symptoms in the early stage are simply hoarseness and loss of voice, with no apparent change in the mucous membrane; but after a while a follicular degeneration can be detected, with congestion and ulceration of the mucous follicles.

In some cases it is ushered in with a complete loss of voice; in others it originates in a sort of uneasy sensation in the upper part of the throat, with an inclination as if there was something to swallow; cough, and the larynx painful on pressure; expectoration of a thin, viscid mucus, occasionally pus, with gradual loss of voice or diminution of its power; hoarseness towards evening, which gradually merges into complete aphonia with ulceration, or unhealthy granulations, or even vegetations. As the disease advances, it gradually merges into tuberculæ, and terminates, if not in recovery, in lung consumption, caries of cartilages.

Symptoms are nearly identical with chronic laryngitis,—aphonia, cough, and expectoration.

It is, perhaps, important to diagnose it from syphilitic laryngitis, which is common among clergymen. A man preaching the gospel who is incapable of putting an intellectual effort into his words is unfit for his profession.

Treatment.—Same as for chronic laryngitis, with absolute rest of voice. Alteratives and tonics, best of diet, irritating plaster to neck, moist atmosphere; inhalation of carbolic acid and tincture of iodine; an even temperature, 75° F., and a persistent use of special tonics to act on larynx, as aconite, belladonna, nux vomica, quinine, iron, and diluted hydrocyanic acid.

Those invaluable remedies, as compound saxifraga, glycerite of ozone, kephalline and cinchona, and aromatic sulphuric acid,

must be persistently administered in order to reconstruct the shattered part.

APHONIA.

Loss of Voice from *Functional, Blood or Organic Disease*, operating upon the vocal cords, varies in degree from a slight hoarseness to complete dumbness. There are numerous varieties, as *aphonia* from absence of tongue; *aphasia*, the loss of the cerebral faculty of speech by disease of the base of brain from nitrate of silver, lead, bismuth in hair dyes and cosmetics, and disease-germs as syphilis, tubercula, diphtheria; *aphonia* from warts, tumors near the glottis; *aphonia* from the different forms of chronic laryngitis; *aphonia* from loss of nerve power, as in typhoid, and *aphonia* from irritation reflected, as in teething, worms, masturbation.

It is necessary to describe them all as they are spoken of under their respective heads. There are two forms, however, that might be enumerated—functional and organic.

(1.) Functional Variety.—Reflected irritation tells badly on the larynx. Children often lose their voice in teething, worms and the like; women who suffer from uterine, ovarian or other forms of irritation of the genito-urinary organs suffer much and often. The irritation of the clitoris with hypertrophy of that organ causes a wonderful harshness of voice, rough and masculine. Males of effeminate type, sensitive disposition, are great victims of aphonia, if addicted to masturbation. The squeaky voice, with or without loss, is notorious. Some men will suffer from aphonia from sexual excess or a gonorrhea. If this reflected or functional form is permitted to continue long, the vocal cords are liable to suffer atrophy or paralysis—become flaccid and powerless.

(2.) Organic Form.—This is apt to be present in old cases of chronic laryngitis, perforating ulceration in the syphilitic or mercurial form. It might also follow diphtheria, morbid growths, disease of blood and brain.

Treatment.—This requires great tact and good judgment. The removal of causes is of vast importance; teething, worms, irritation of the organs of generation, male and female; the destruction of all disease-germs in the blood, appetite promoted, nourishing diet, shower baths, irritating plaster to nape of neck, equable temperature, 75°, moist atmosphere, inhalation of warm, atomized sprays of ammonia, tincture of hydrastin, gargles of chlorate of potass, bayberry, iodoform.

General alterative and tonic course of treatment, using freely such remedies as ozonized glycerine, compound syrup phytolacca ozonized; and as tonics, quinine, iron, hydrastin, nuxvomica. If the cases do not yield, large doses of bromide of

potass, calabar bean, and tincture of green root gelseminum to diminish irritation of cerebro-spinal axis.

CROUP.

Under this term there are usually classed three different morbid states: (1) a spasmodic action of the larynx, usually caused by reflex irritation, as teething, worms and derangements of the digestive organs; (2) a form of laryngitis, due to cold, wet, exposure; (3) true croup, with the formation of a false membrane on tongue, tonsils, uvula, larynx and trachea.

True Membranous Croup consists of a degradation of normal bioplasm into a mycelia, very much resembling the formation of the *oidium albicans* of diphtheria, but not contagious or infectious. It occurs on mucous membrane of air passages; most common during second and third years of life; often complicated with bronchitis or pneumonia. It is very apt to terminate fatally from exhaustion, suffocation, convulsions or thrombosis.

The disease seems to depend on a peculiar cachexia.

Symptoms in the early stage are very similar to catarrh: slight fever, cough, hoarseness, drowsiness, suffusion of eyes and running at nose. In the course of a few hours wheezing respiration; fits of hoarse coughing; occasional spasm of laryngeal muscles. Then the characteristic symptoms, alteration in cough, which has now a peculiar ringing sound, rendering it brassy; inspirations prolonged, accompanied with a crowing or piping noise; redness and swelling of tonsils, uvula, but not so diffused as in tonsillitis; increased fever; breathing becomes more hurried and impeded; cough frequent; great prostration, with irregularity of pulse; great thirst, irritability and restlessness; patient's features expressive of alarm and distress; he grasps at his throat, thrusts his fingers into his mouth, as if to remove the cause of his suffering; symptoms much worse towards afternoon and evening; a remission towards morning. If vital force properly aided with remedies, overcomes the disease, cough loses its peculiar twang, becomes moist, crowing inspirations cease, expectoration takes place. But if all fail, and death is approaching, drowsiness becomes great, sleep is uneasy, child starts and wakes in terror, breathing becomes gasping and interrupted, suffocation seems impending, congestion of lungs, skin cold, covered with a clammy sweat, asphyxia, coma, convulsions or fatal thrombosis.

Treatment.—There is much good to be derived from general management. Patient must be confined to bed in a room with a moist atmosphere, whose temperature is 75° Fahr.; steam atomizer kept running near bed, with antiseptic vapors, iodine, chlorate or permanganate of potass; very nourishing diet; beef

tea, cream, milk and lime-water; open bowels with enemata; if tongue is coated, emetic of lobelia; pack the patient in a blanket wrung out of warm water, and cover with three or four blankets; aconite and veratrum for fever; belladonna and vaseline to throat and neck. In all cases give large doses of quinine, from one to five grains, every four hours; and every half-hour thirty drops of the acetic syrup of blood root, and if there are spasmodic contractions of the laryngeal muscles, add lobelia. Acetic syrup operates well in the destruction of false membrane, and the quinine seems to have a wonderful effect on the mycelia in the blood. As soon as the urgent symptoms are relieved, remove the belladonna and vaseline from throat, and administer tincture belladonna and liquor ammonia acetatis in doses appropriate to age, but persistently. This will meet the condition of embolism; otherwise, case should be treated on general principles.

HOOPING-COUGH.

An infectious or contagious disease, commonly met with in children, and rarely occurring but once in a life-time; attended with a slight fever and vomiting, and also, at first, with catarrh, and with a peculiar cough that occurs in paroxysms at irregular intervals.

The cause is the presence of the mycelia in the blood—a special branch of the *oidium albicans* family. The field of nutrition—the blood, but it has a strong affinity to localize in the cervical portion of spinal cord, in which locality it seems to find a pabulum fitted for its nutrition. The blood is heavily loaded with both mycelia and bacteria, so that its vital properties are seriously damaged.

Symptoms.—Like numerous other living poisons in the blood, it has a period of incubation, or fecundation, growth, activity and death, depending a good deal on the vital force of the patient, extending from a week to a month, in which the ordinary symptoms of prostration, with fits of coughing, coryza, heat of skin, restlessness and oppression of chest. As this stage of incubation passes off the cough assumes a shrill sound or whoop; child instinctively becomes aware, when the attacks are approaching, and becomes alarmed; seizures of coughs or expiratory efforts very protracted; suffocation seems about to set in, when relief is afforded by a long respiratory act, the rush of air through the glottis causing the crowing or hooping. During the hoop or spasm there is a strong tendency for the diseased blood to coagulate, and thus cause dilatation of the heart.

Immediately after fit patient regains courage; soon appears well. There may be two or three paroxysms in an hour, or

as many in a day. If vomiting occurs after diet there is a craving for food immediately afterwards.

Duration under the old treatment was from a week to three months, incubation four to six weeks' active life in germ, the same and as long in its death and diminution. Under antiseptic treatment, duration about one week or ten days.

Complications, as measles, small-pox, bronchitis, pneumonia; disordered bowels, as cholera infantum, tubercular meningitis, always render it fatal; cough, accompanied with hæmorrhage from nose, mouth, ears, effusion into the conjunctiva are bad complications. It may prove fatal from exhaustion, marasmus, convulsions from embolism, or thrombosis in heart or large arteries. When disease is permitted to run its course, emphysema, dilatation of ventricles of heart and glucosuria are common.

Treatment.—Patient should be confined to one room: every whim or desire gratified; temperature, 70° Fahr.; moist atmosphere; flannel clothing; very nutritious but easily digested food, milk, cream, fish, eggs, mucilaginous drinks; attention to bowels; if food is vomited, milk and lime-water or strong coffee. Friction to cervical portion of spine night and morning, with belladonna and vaseline.

Diminish reflex impressibility of medulla and spinal cord with the following remedies, put up in fluid extract of sumbul, or compound syrup lobelia, or camphor water. To illustrate we will select:

Fluid extract of sumbul or musk root, four ounces; bromide of potassium, one ounce; bromide of ammonia, three drachms; bicarbonate potassa, three drachms; tincture of calabar bean, one ounce; tincture of black cohosh, three drachms; tincture of belladonna, one drachm; diluted hydrocyanic acid, twenty drops.—Mix. From half to one teaspoonful every four hours in sweetened water. Between each dose some antiseptic; what that will be will depend on the condition of the little sufferer. Chlorate or permanganate of potassa answers well if there is no looseness of bowels. Carbolic acid and tincture of iodine, as laid down under *Typhoid Fever*, and given every hour in teaspoonful doses.

Internal antiseptics are much better than inhaling vapor of tar or the like.

General treatment by tonics and change of air.

Other remedies sometimes used, but with poor success. Skunk cabbage, trefolium, capsicum, coffee, droseera, cochineal, nitric acid.

Bromohydric Acid is useful in some cases, combined with quinine, where there is great prostration, and it exercises as powerful an influence over acts of reflex origin as the bromide. It is well worthy of a trial, especially in those cases accompanied

with gastric irritability and vomiting of food. The dose should be the maximum for a child. The inhaling of antiseptic fumes of tar, gas works and otherwise, not attended with much good, but mothers believe it to be beneficial, nay, are superstitious of their efficacy.

ASTHMA.

An irritation of the nerves that supply the circular muscular fibres of the bronchi, causing spasm or contraction. This irritation may be in the periphery in the bronchi, or in the medulla oblongata, so that paroxysms or fits may be induced by reflex or direct mechanism, that is to say, the stimulus to contraction may be central in the medulla, or it may be in pulmonary or gastric portion of the pneumogastric, or in some other part of the nervous system, besides the vagus, and being transmitted to the medulla by incident, is thence reflected by motor filaments.

A very good plan is to arrange causes under three divisions: (1.) Central causes in the medulla oblongata. (2.) Peripheral causes in the bronchi, lung, stomach, heart. (3.) Affections of blood.

(1.) Often hereditary; peculiar types of conformation; idiopathic.

(2.) Reflex; disease of heart, stomach, lungs, alimentary canal, skin.

(3.) Germs in blood irritating the weakened cerebral bulb or periphery, as tubercle, syphilis, rabies, gout, etc.; so that asthma has always at the root of it some central nervous irritation, or some peripheral source of it.

The causes embraced under these, then, are very numerous, as diseases of the chest and abdomen, some latent skin disease, certain winds, changes in atmosphere, especially dryness, with increase of oxygen and diminished electricity; inhalation of disease-germs or irritating substances, the micro-organisms of plants, flowers, hay, malaria, gout, rheumatism; non-acclimatization or incompatibility to soil, location or country. If there is no apparent cause, blood-germs, as syphilis, rabies, tuberculae. An asthmatic is thin, of a nervous temperament, round-shouldered; countenance expressive of attacks of suffering; cheeks hollow; voice rather hoarse; slight cough; suffers from nervous dyspepsia.

Symptoms.—Languor, lassitude, debility, headache and drowsiness, often digestive derangement; or it may occur suddenly without any of those signs. Most generally the patient falls into a sleep, when he suddenly awakes with a sense of suffocation or constriction about the chest; smothering and difficulty of breathing increases until there is a most fearful struggle for breath. Patient gets right up in the sitting pos-

ture and assumes various positions to facilitate respiration. Chest becomes distended to its utmost limit. The contractions of the circular muscular fibres of the bronchi are so great that they offer a perfect obstruction to the entrance or exit of air. On placing ear to the chest, no natural breathing audible, but dry murmurs, loud wheezings, shrill whistlings are heard. Pulse becomes small, feeble, almost imperceptible; eyes staring, protruding from sockets; countenance anxious; lips purple; temperature of body falls to nearly 80° Fahr. But after a while of intense suffering, the skin becomes bathed in a copious sweat. After that usually the spasm breaks and the patient obtains relief. Cough, with some expectoration; paroxysms ceases, and patient falls asleep.

One attack may follow another, or there may be a series of light attacks violent enough to keep patient up in his chair to midnight. Attacks may come on every night or at long intervals—often periodical. Asthma is very capricious, kept up by some climates, some aromas, gases, houses, beds, etc. During the interval or between attacks patient enjoys moderately good health. Men are more frequently attacked than women.

Asthma, denominated hay, ragweed, roses, and the micro-organism of plants and trees does not differ in symptoms. The bacilli of the vegetable kingdom acts as an irritant to the periphery of nerves in the bronchi; it is reflected to the bulb and transmitted back—hence the spasm.

The duration of asthma is apt to be tedious if not arrested promptly at the start. Its effects or results are, thickening of the circular muscular rings, with effused lymph, causing a permanent narrowing of tubes and wheezing respiration; dilatation of the air vessels into sacs or pouches, as in emphysema; dilatation of ventricles of the heart from embolism; general breaking down of the nervous system, nervous dyspepsia, alkaline diathesis, etc., etc.

Treatment.—During the attack, if the stomach is loaded, an emetic of lobelia; or if suffering from constipation, copious enemas. Then the great object in treatment is to relax bronchial spasm. For this purpose some of the following remedies should be tried, selecting one until one is procured that is effectual.

Lobelia, useful in a number of cases; when it produces nausea and collapse the attack often ceases. Compound powder is best form.

A cup of strong coffee will often ward off an attack; so will a strong glass of hot whisky punch.

Inhalation of chloroform or other anæsthetics, like ether, are of little utility. Iodoform dissolved in ether and inhaled may be useful if due to catarrh.

A dose of two grains of iodide of potassa, the same of car-

bonate of ammonia, with twenty drops of tincture of belladonna, may ward off an attack.

Nitrite of amyl, five drops on a cloth and inhaled, or iodide of ethyl, six to ten drops, inhaled; either one increases the bronchial secretion, gives instant relief. Their effects are transient but often curative. Nitrite of amyl in alcohol operates like a charm, as follows: alcohol, half an ounce; water, one ounce and a half; nitrite amyl, three drops.—Mix. Add to half a tumbler of ice or cold water and drink at once. The alcohol keeps up the action of the nitrite of amyl for some time. Such a combination relaxes the arterial vessels to their minutest subdivision, relaxes organic muscular fibre.

One or more drops of a one per cent. solution of nitro-glycerine produces, within a few minutes, a diminution of tension and wonderful relief in breathing. Its effects are marked and durable.

The fluid extract of quebracho is used most successfully in asthma. A teaspoonful, repeated every ten minutes, relieves the difficulty of breathing.

Members of the medical profession are disgusted with the endless complications and combinations of antispasmodics, and have sought other remedies, as jaborandi and its alkaloid, pilocarpin. The powerful revolution which that remedy produces in the distribution of the blood, has a most beneficial effect in asthma, attracting the blood to the skin and salivary glands, and by diminishing its volume through the copious perspiration and salivation. The interstitial changes in the lung after its exhibition is followed by amelioration of all the symptoms. Its use requires care and caution. The alkaloid, by hypodermic injection, is preferable to the fluid extract, in doses of about one-third of a grain. During the action of drug, recumbent posture.

Antispasmodic fumes may be used in the absence of better remedies; they owe their properties chiefly to ammonia, or some acro-narcotic, nitre paper, stramonium, belladonna and lobelia; cigarettes produce when inhaled intense hyperamia, as may be seen in the buccal, pharyngeal, laryngeal mucous membrane of habitual smokers, and exudation which tends to soften and detach obstinate mucus. With such remedies, we endeavor to overcome spasm; and with the use of the bromine compound as laid down under hooping-cough, in doses of a teaspoonful every three hours, we make an effort to ward off attacks, and in the interval we try curative measures.

Curative Treatment.—Great care and diligence to ascertain cause or causes. If there seems to be a catarrhal condition, treatment as laid down under that head—if there are latent germs present in the blood treat accordingly. Dogs licking

children's hands, in whose mouths the germ of rabies are often present, is a fruitful but unthought of cause of asthma in adult life. Powerful alteratives, as iodide of potass and ozonized glycerine; indeed, these constitute the most certain way of curing asthma, whatever its origin may be. Blisters or irritating plasters to nape of neck on both sides, an open sore. If there are any reflex conditions, remove them. If digestion is weak, cinchona compound and mineral acids, pepsine, gentian. If there is evidence of malaria, tincture iodine, green-root, tincture of gelsemine with quinine. If no cause can be discovered, a general alterative and tonic course.

Rosin-weed and a large list of worthless drugs are now discarded in the cure of asthma.

Every possible means taken to improve the general health by tonics; the most nutritive diet, regular mode of life; daily use of the cold shower or sponge bath; removal of dyspepsia; meals to be taken at such hours that digestion may be completed before retiring to bed. Flannel clothing. To sleep on hair or straw mattress, bed in all cases to be insulated from the floor or wall by glass castors, so as not to permit his electrical forces to be drawn off. A suitable house, location or climate selected.

As to the effects of asthma, thickening of the rings of the bronchi, alteratives, irritating plaster are of great utility; other terminations managed on general principles.

EMPHYSEMA.

A pouch or air-sac in the lungs. Two varieties: Vesicular and inter-lobular emphysema.

Vesicular Emphysema.—Consists of a debilitation, enlargement, and coalescence of air-cells, atrophy of their walls, and obliteration of their vessels, may affect one or both lungs, or a part of each, especially anterior edges and apices.

Its causes are degeneration, a sort of interstitial death, destroying elasticity and contractility of affected tissues, the air-cells and their surroundings, which conditions may be caused or intensified by running, jumping, hoisting, playing base-ball or wind-instruments, singing, shouting, lifting, digging, rowing, running up stairs, or by anything that would cause the patient to take prolonged deep inspirations, or sudden check to an expiration, a sequel of hooping-cough, asthma, chronic bronchitis.

Inter-Lobular.—Consists of an infiltration of air into the inter-lobular areolar tissue, or into sub-pleural areolar tissue. This form is generally caused by rupture of the air-cells by violent strain, or fractured ribs, and is generally met at the corners or abrupt angles of the lungs. The destruction is im-

portant, as the form is very hopeless, and can only be relieved by antispasmodics.

Symptoms.—The symptoms are the same in both forms. General debility, with shortness of breath and difficulty of breathing, increased by slightest exertion, and general distress, that the sufferer is unfit for any active occupation; feeble cough, expectoration of frothy sputa, dusky appearance of countenance, weakness of voice, stooping gait; loss of flesh and strength, lowered temperature, 85° Fahr.; very weak and slow pulse, 50 to 60; respiration 12 per minute; constipation, occasional paroxysms of asthma; chest barrel-shaped, scarcely any movement of the intercostal muscles in breathing; on percussion, an unnatural clearness tympanitis can be mapped out, and to be found there at all times. Auscultation reveals indication of vesicular murmurs as must rule us in bronchitis. Heart sounds are very feeble, and that organ is frequently displaced. Disease of the right cavities of heart, with venous congestion and dropsy. Diseased side bulging, round or prominent in bad cases.

Treatment.—Emphysema is generally regarded as an incurable affection, and that is correct in a large proportion of cases; still there are few cases that does not admit of much amelioration, and very many of the vesicular form curable.

All conditions that would be likely to cause sudden inspiration or expiration should be avoided, as mental and physical excitement, no shouting nor attempts at running, lifting, rowing, etc. Warm flannel clothing, very generous and strengthening diet, and tonics to stimulate appetite. Some remedies have a remarkable power over the interstitial tissue and stroma of the lungs in atrophy or in sclerosis, such as lobelia, quinine and hyosciamus; one grain of each thrice daily operates well, and effects some good cures put up in pill form; liquor ammonia, sumbul, phosphate of iron and quinine, also, are of great efficacy. The lobelia, quinine and hyosciamus pill is our best combination; next, bromohydric acid; warm, moist atmosphere.

DIFFICULTY OF BREATHING.

Difficult respiration may be due to a variety of causes, viz.:

Pharyngeal, from inflammatory swelling of fauces, tonsils.

Laryngeal, in croup, laryngitis, syphilitic tubercula and cancerous disease, foreign bodies, growths, spasms, paralysis, tumors, aneurism.

Tracheal, ulceration, narrowing or pressure.

Pulmonic, as bronchitis, asthma, emphysema, consolidated effusion into lungs, chest.

Heart, in valvular disease, obstruction to the return of blood from pulmonary veins.

Other cases, as spasm of chest and diaphragm in tetanus, trichinosis, pressure on diaphragm by water in the cavity of abdomen, ovarium tumor, gravid uterus.

Snoring or Stertorous Breathing.—Many valuable lives are daily lost by inattention to the character of the breathing. Physicians, in grave states of peritonitis, gastritis, nutritis, etc., induce narcotism as a means of stamping out the disease in which stertorous breathing is an essential symptom, and when this end has been gained the patient is permitted to die, simply because the position is not changed. We might enumerate other diseases, as pneumonia, etc. It should be always borne in mind that stertorous breathing is a pure mechanical condition, and can be got rid of. There are, so to speak, three forms of it:

1. *Nasal or Palatine Stertor*, when the air is rushing through the nose or mouth, causing a vibration of the soft palate.

2. *Pharyngeal Stertor*, when the air passes through the narrowed interval between the base of the tongue and the posterior wall of the pharynx.

3. *Mucus Stertor*, when there is mucus in the air tubes, and the air in breathing bubbles through it.

Of these three, pharyngeal stertor is the most common in apoplexy, fracture of skull, chloroform, and intoxication from alcohol and narcotics.

Mucus stertor, when unaccompanied or unconnected by living engorgement, may occur in serious cases, when the nutritive process of the lungs are interfered with by some injury to the seat of life in the medulla oblongata, injuries to the brain, convulsions, poisoning with opium, drowning, epilepsy, apoplexy, and the so-called death rattles of profound prostration, whether there be fluids in the bronchi or not. Snoring in these and other states shows that there is an impedient to the ingress of air, so that the blood and tissues fail to be oxygenized—a condition of non-aeration of blood and embolism; a failure of the heart's action and death. It is very doubtful whether a large percentage of death does not really occur from this cause, and most of those mysterious deaths that occur during sleep. When snoring or stertor forms a symptom it should be treated by placing the patient on either side, and keeping him there. This seldom fails to give instant relief to this distressing and dangerous symptom with its consequences, and death in many cases can often be obviated.

COUGH.

A symptom of numerous and various diseases, as catarrh, laryngitis, asthma, croup, pleurisy, pneumonia, etc.

Cough consists in deep inspiration, closure of the glottis, and

violent expiratory effort by which the glottis is forcibly opened by the compressed air, which carries with it, in its exit, mucus or other matters which may have lodged in the lungs or respiratory passages. The nervous centre for this act lies in the medulla oblongata. It is to be lateral, and situated on each side of the central raphe. It is excited into action reflexly by irritation of the respiratory branches of the vagus, distributed to the folds of the epiglottis, to the whole interior of the larynx, to the trachea, especially at its bifurcation, to the bronchi, to the substance of the lung itself, as well as the pleura when it is inflamed. Irritation of the internal auditory canal at the point to which the auricular branches of the vagus are distributed, also causes coughing; and so may irritation of stomach, liver, spleen. As coughing is a reflex act, excited by irritation applied to a sensory nerve, and reacting through a nerve-centre upon the respiratory muscles, it is obvious that it may be lessened either by removing the source of the irritation, or by diminishing the excitability of the nervous mechanism through which it acts. Both medicines are employed in practice. One of the most common being to lessen irritation by the use of mucilaginous, or saccharine, or oleaginous substances which have no action upon the nerve-centres; the other by acting on the nerve-centres.

The probable action of marshmallow, gum liquorice, is to soothe irritation at the root of the tongue, around the fauces, as well as the trachea, bronchi or lungs. This probable action in relieving cough depends to a great extent on their mucilaginous coat. Sedatives relieve cough by entering the blood, and being carried to the medulla lessen the excitability of the nerve-centres, such as bromohydric acid with spirits of chloroform and syrup squills, or a mixture of solution of hydrochlorate of morphia; dilute hydrocyanic acid, of each, twenty drops; glycerine and infusion of gentian, of each, two ounces; chloroform, three drachms. A teaspoonful, as indicated, every three hours. Muriate of ammonia, etc.

Cough, from teething and intestinal irritation, lancing gums, emetic wine of ipecac., etc.

Cough, from relaxed or elongated uvula, over-large tonsils, alteratives, iodide, iodoform, excision of uvula.

Ear-cough, due to disease of the ear.

Nervous and hysterical cough. Sumbul, lobelia, pulsatella, bromine, horseback exercise, sea bathing, shower baths, nourishing food.

BRONCHITIS.

Inflammation or partial death of the mucous membrane of the bronchial tubes. It may be acute or chronic, and affect the

larger or smaller tubes or both; or one or both lungs throughout, or only a portion of them.

Acute Bronchitis.—A very dangerous form of inflammation, accompanied with great fever and prostration, and danger of a spread of the inflammation to the vesicular texture of the lungs, or a plugging up of the bronchi with effused lymph and collapse, or inflammation of the substance of the lung with blood, lymph, liquor sanguinis, etc.

The causes are usually cold, damp, wet, exposure to vicissitudes of weather, inhalation of irritants, etc., etc.

Symptoms.—Shock, with indications of prostration, violent headache, with rigors and a high grade of fever; pulse often one hundred and forty; respirations from thirty to forty; heat 105° up; a sense of intense soreness or rawness over the affected part; tightness or constriction of the chest; hurried or excited respiration, with rough wheezing; incessant hacking, dry cough at first, afterwards expectoration of viscid, glary, frothy mucus, and afterwards of muco-purulent matter; pulse, although frequent, is weak; tongue heavily coated, nausea, great anxiety, with indications of prostration and collapse.

Inflammation of the main trunk or large sized tubes is attended with much less danger than the smaller branches. In the smaller branches, there is a greater tendency, in a fit of coughing or excitement, for the tube or tubes to be blocked up by thick, viscid, tenacious phlegm, which, on taking a deep inspiration, is liable to be pushed down; acting as a cork, preventing the air from reaching a lobe of the lung, hence collapse. A portion of lung not filled by air becomes quickly hepatized or vesicular, emphysema is produced; so that in either case we have a vital organ incapable of æration.

On percussion of the chest in bronchitis, the lungs should exhibit resonance and clearness from top to bottom; at least, no marked alteration should be detected, with the exception of increased resonance in emphysema, or the dull, flat sound of hepatization in collapse.

On auscultation, in the early stages, dry sounds or rales can be distinctly heard, like air rushing through a red hot tube. If heard over the main trunk or large branches, it is called *rhonchus*; if over the small branches, *sibilus*. Rhonchus to the large, sibilus to the small. Sibilus bespeaks danger; rhonchus almost free from it. These dry sounds are usually only heard the first few days, for once the inflammation has terminated in effusion and its products have poured out from the inflamed membrane, those dry sounds are displaced by moist sounds, called large crepitation, if over the large tubes; small crepitation if over the small. So rhonchus and large crepitation are

the dry and moist sounds of large air passages; sibilus and small crepitation of the smaller branches. Its duration, under good treatment, should not take over a few days

Treatment.—Recumbent posture in bed, temperature, 70° Fahr., air to be moistened by hot steam. If stomach is badly deranged and tongue foul, a gentle emetic of lobelia; if there be constipation, open bowels quickly with enemas and salines. Diet to consist of warm beef tea, warm gruel, or warm milk and arrow-root, warm mucilaginous drinks, as flaxseed tea, wine whey; heat to feet. Mustard is to be applied over chest and back, large plasters, followed with hot poultices of flaxseed meal and glycerine.

There are several methods of breaking up the attack. If seen early, one is by the administration of large doses of tinctures of aconite and veratrum every half hour, till pulse is seventy, and then at less frequent intervals. This is a good plan. Another is to give small doses of lobelia until the patient becomes slightly nauseated and pulse down, and then at less frequent intervals. And a third good expedient is to use jaborandi or its alkaloid; the former in fluid extract, or, if the latter, by hypodermic injection. If jaborandi or pilocarpin be used, the patient must cease drinking and spit out his saliva freely. The powerful revolution which this latter remedy produces in the distribution of the blood, has an instantaneous effect in attracting the blood to the skin, relieving the bronchial mucous membrane. Its action is quick in giving relief; besides, it favors the expulsion of the obstructing plug in the air passages, prevents the formation of viscid mucus, prevents the swelling of the large bronchial glands and initiates a reparatory process in the bronchial tract. In an urgent case the three methods might be combined. As soon as the urgent symptoms are perfectly controlled, an alkali, such as the muriate of ammonia or chlorate of potassa, or carbonate of ammonia or potassa. The effects of alkalies are very marked, indeed. They soothe, soften and aid expectoration, and if given in combination with an acid, the dry rales subside and are replaced by moist ones; expectoration copious, and cough less frequent and less troublesome. Convalescence to be established upon alteratives, as the ozonized glycerine, phytolacca, and tonics, like quinine and mineral acids.

Chronic Bronchitis—May be a sequel of an acute attack, or it may come on of itself from the same causes that produce the acute.

Symptoms.—General symptoms of nervous prostration, languor, lassitude, debility; face white, features sharp-pointed; nervous dyspepsia; phosphates and chlorides in urine; great emaciation, harrassing cough, even habitual; great difficulty

of breathing, shortness of breathing; sometimes a sense of soreness or rawness, in other cases this is absent. The lungs in ordinary cases should be clear from top to bottom, but as it generally assumes one or other of two forms, this may not be the case. One form, without expectoration, tends to emphysema; the other, with copious expectoration, leads to pulmonary consolidation. The former will have unusual resonance on percussion; the latter, dullness. If there is expectoration, it is copious, and aggravated by exposure to cold or damp, bad living or change of temperature. There is little rhonchus or sibilus in chronic bronchitis, but abundance of moist crepitation, large and small. In all cases the nutritive disturbance proceeds from the surface of the bronchi and gradually spreads to the stroma of the lungs, terminating in atrophy or in sclerosis. Dilatation of bronchi, with condensation of surrounding tissue, often results; sometimes a sort of bronchial catarrh, with excessive muco-purulent discharge. The winter coughs or colds, recurring annually, are but the precursors of more permanent forms of bronchial inflammation. When interstitial substance of lung is greatly affected in either form, non-æration of blood to a limited extent, which gives rise to a blueness of nails or lips, slate or even livid appearance of skin, especially of the lower extremities. It is essentially a chronic affection, lasting years, seldom directly fatal, but may be so by the causing of other diseases.

In chronic bronchitis there is always a true ulceration of the bronchial mucous membrane, and a degradation of the living matter concerned in its nutrition into the disease-germ, amœba, which is found in great abundance in the sputum; not, however in such immense quantities as in catarrh, still, enough to place chronic bronchitis as a somewhat contagious disease.

Treatment.—This is varied, but embraces certain well-defined principles. A warm, moist atmosphere, which contains a small amount of oxygen, is the most suitable; flannel or silk clothing, especially next to skin; daily bathing, alkaline or acid, followed by inunction of warm olive oil to the amount of three or four ounces; diet and drink to be warm and of the most nourishing kind, such as milk, eggs, boiled fish, broiled tenderloin steak, with abundance of cooked vegetables. Warm food and drink are powerful expectorants, and in all cases it is well to have the patient drink a cup of hot coffee or milk before getting up, or warm beef tea. Stomach to be looked to with tonics and bowels carefully regulated. All physical and mental exertion or excitement to be guarded against. On the front and back of chest there is no liniment or stimulant that can equal the irritating plaster. It should be worn as much as possible, at least one-half the time.

As it is a chronic disease, there should be a persistent course of alteratives and tonics, changing them weekly; the tonics before meals, alteratives two hours after. Such alteratives as ozonized glycerine, compound syrup phytolacca, ozonized saxifraga, with iodide of potassa, and tonics, ozone-water, solution of quinine, tincture cinchona, compound golden seal.

Besides the above there must be a treatment with expectorants and bronchial stimulants, so as to arrest or mitigate cough, and promote a healing process in the bronchi. For this purpose various preparations of ammonia are expectorants, such as muriate of ammonia in syrup of squills, carbonate or citrate of ammonia in syrup senega; chloride or bromide of ammonia in syrup of ipecac.; nitric acid and compound tincture cinchona; tolu, conium and belladonna; balsam capaiba dropped on sugar; cubebs and extract horse-radish; benzoate of ammonia in port wine; lobelia and blood-root.

It is impossible to mention a single remedy; which ever affords the greatest relief should have the preference.

Besides the above, the greatest benefit is to be derived from the inhalation of moist, warm medicated antiseptic vapors several times a day. The remedies to be of any utility must be antiseptic; such as sulphurous acid, creosote, chlorate or permanganate of potassa; tincture of benzoin, benzoate of soda, boracic acid, carbolic acid, and a variety of others. The inhalation of stimulating antiseptics prove very beneficial in all cases, and is one of our valuable aids in cure. The action of a disinfectant and stimulant on the ulcerated surface, and its destructive influence on the germs, is of great benefit; and one thing can be said of it—that it in no way interferes with the use of constitutional and internal remedies. It is best to be used frequently, for half an hour or more at a time, and as often as four or five times a day, and in no case must either its use or strength excite any cough.

Alteratives, tonics, inhalation, and a very free use of expectorants, is undoubtedly the best method of treatment in patients under forty-five years of age. When chronic bronchitis occurs over that the use of expectorants are of doubtful efficacy, often injurious.

Bronchitis Senilis is a peculiar and dangerous form of chronic bronchitis, occurring in persons over forty-five, or in the aged, and is due to natural decay or degeneration of the bronchial mucous membrane, as a result of age. It is spoken of under various names, as catarrhus senilis, bronchitis of the old. It seems at first to consist of a general inflammation of the capillaries of the tubes, followed by atrophy and interstitial death; sometimes comes on in an acute form, attended with great danger; more generally it is insidious, making its appear-

ance with great difficulty of breathing, and excessive secretion of frothy mucus. Its symptoms and treatment are the same as chronic bronchitis, with the exception that, as a general rule, expectorants operate badly, aggravating the symptoms; whereas, under tannin or vegetable astringents there is a remarkable amelioration.

Infantile Bronchitis consists usually in acute catarrh, laryngitis, bronchitis, general and capillary. It is usually due to cold, and is easily recognized by its tendency to asphyxia, difficulty of breathing, great congestion of the skin, perpetual cough, general restlessness, increasing prostration, and in fatal cases, somnolence, muttering, delirium, coma.

General management as to warm, moist atmosphere, warm bath, oil to chest and throat, aconite and belladonna for fever, and a free use of lobelia are our best remedies. One heaped teaspoonful of pulverized green lobelia, and the same quantity of carbonate of potassa to a teacupful of boiling water, allowing it to cool and settle; and begin by administering half a teaspoonful every hour, half hour, or less frequent, giving it largely morning and night to procure free vomiting. The vertical position of a child's stomach during the early years enable it to vomit easily; and this act is indispensable in children, because they swallow the products of inflammation, lymph, muco-purulent matter, etc., which, in themselves, tend to aggravate the symptoms and keep up a sort of hectic fever.

There are no remedies so useful in infantile bronchitis as lobelia and potassa; the latter softens, while the former keeps up free expectoration.

As the case improves, ipecac, tolu, senega, squills, wild cherry, etc.

Plastic Bronchitis.—This is simply a form of chronic bronchitis, in which there is a drying up of the lymph and muco-purulent matter in the tubes, in which they become solid in the shape of the tubes, tubular concretions of exudative matter within bronchi.

Symptoms are the same as the chronic, to which are to be added expectoration of casts of tubes, or of moulds of notable size, preceded by a great difficulty of breathing, dry, hacking, racking cough, followed by hæmorrhage, and the hæmoptysis often excessive. Small casts are expelled easily, while large ones, especially if fibrinous, are not easily got rid of, as they are congealed and adherent, sometimes a pure congelation of lymph or blood. Such bodies, by their irritation, often give rise to renewed irritation. It is even more troublesome and intractable than the chronic form.

Treatment, same as for chronic, with the exception that such remedies as carbonate of potassa, chlorate of potassa,

muriate of ammonia, iodide and bicarbonate of potass should be given more freely and repeatedly; hæmorrhage arrested with digitalis in preference to gallic acid or iron.

Mechanical Bronchitis.—Usually chronic, and due to the inhalation of particles which irritate, inflame and ulcerate bronchi. For example: file-makers, knife-grinders, carpet-shakers, dust of coal in miners, cotton, woollen and silk operatives in factories, and other occupations. It is customary to so designate the bronchitis.

Secondary Bronchitis.—Chronic bronchitis occurring when there are disease-germs or morbid states of blood; germs are apt to colonize in the weakened, ulcerated mucous membrane of the bronchi, and greatly aggravate the difficulty. We have the vibrios of typhoid fever irritating a feeble bronchial tract; the latent germ of rabies, the germs of syphilis, tuberculae, etc., gout, rheumatism, and other blood-poisons. According to the germ or poison present, the bronchitis is so named. The symptoms are much worse, usually double, especially the emaciation or wasting debility is very great; night-sweats, copious or excessive muco-purulent expectoration. Alteratives and tonics, same as *Chronic Bronchitis*, and special drugs to destroy germ or neutralize blood-poison in each individual case.

Hay Bronchitis.—Hay fever, summer catarrh; often severe, with asthmatic symptoms superadded; due to the micro-organisms of plants, or bacilli of hay and other grasses, causing a degradation of the normal bioplasm of the respiratory mucous tract from nose down to the air-vessels.

Symptoms.—Are quite complicated; headache, suffusion of eyes, sneezing, irritation of nose, fauces; larynx, bronchi, often greatly congested; cough, and the other physical signs of acute bronchitis. It is a sort of combination of acute catarrh, with sub-acute laryngitis and bronchitis.

Treatment.—Removal of cause if possible. Quinine is the best preventative. If chiefly catarrhal, a solution of borax in infusion of golden seal with nasal douche. Some of the following remedies to give relief—comp. lobelia, ammonia in some form, citrate of caffeine, belladonna, etc. If they fail, general treatment for *Chronic Bronchitis*.

PNEUMONIA.

Inflammation of the substance of the lungs. The predisposing cause is intense nervous depression, especially of the great sympathetic, debility, exhaustion. The exciting causes are cold, damp, exposure, vicissitudes of heat and cold, wet, inhalation of irritants, or mechanical violence.

The usual point of attack is the lower lobe of the right lung, which has a large aerating surface, and is profusely covered with

branches of the sympathetic nerve. Inflammatory action may be limited there, or it may extend over to the left, and be forced upwards in both lungs. As a rule, with few exceptions, inflammation proceeds from below upwards.

Pneumonia is met with in the following forms: *Acute*, sudden in its seizure, and attended with fever; *sub-acute*, of the same character, but the vital forces of the patient being vigorous, resists the local irritation, consequently there is no fever; or *chronic*, which may be a sequel of either of the former, or come on of itself from slight irritation in patients whose constitutions are feeble. It is called *lobular*, when confined to one lobe; *single*, when confined to one lung; *double*, when both lungs are involved; *pleural*, when the violence comes from without and proceeds inward, affecting the pleura first, then the lungs; and *typhoid pneumonia*, when the powers of life are low, and the typhoid germ is developed, giving us inflammation of lungs with typhoid fever.

A case that is permitted to run its course has three distinct stages, viz.—congestion, red hepatization and gray hepatization.

General Symptoms in First Stage.—Great nervous prostration, with pain in the head, back, calves of the legs, with cough, shortness of breath, rusty sputum, or streaks of blood, or hæmorrhage, restlessness and anxiety, violent rigors and high grade of fever, with aggravation of symptoms; pulse 140 to 160, heat 105° Fahr., respiration 40; flush on cheek or cheeks, nostrils dilated, tongue coats heavily with a brown coat, nausea, great thirst, loss of appetite. Cough becomes worse, sputum viscid and bloody, pain in the affected lung, with frequent but distressed breathing, skin has a dry pungent heat, sometimes delirium.

As this is the stage of filling up or engorgement, the affected lung which was clear and resonant, gradually becomes dull on percussion, and crepitation to a variable extent is distinctly heard. If the pleura is involved, friction sounds can be detected; there is exudation into the air-cells and proliferation of their lining epithelium. This stage may last a few hours to a week or longer.

General Symptoms in Second Stage.—If the inflammation proceed, it passes into the stage of red hepatization, in which all the symptoms of the first stage are still present and more decided; there is in addition likely to be blueness or lividity of the skin, delirium or coma from non-aëration of blood. The air-cells are choked by coagulated exudation of blood and lymph; the spongy character of the lung is quite lost, and it becomes solid as a liver, neither minute crepitation nor vesicular murmur can be heard. There is perfect dullness on per-

cussion and no intercostal movement; bronchial or tubular breathing, with vocal vibration communicated to the walls of the chest by the solidified lung and felt by the hand over the ribs unless there be water in the cavity of the chest. The duration of this stage is from a week to a longer period.

General Symptoms in the Third Stage.—If the inflammation still progresses, and the patient does not die in the second stage, then the third or grey hepatization supervenes; then we have a complete change of symptoms. Fever abates; heat, pulse and respirations often low; rigors; profuse coliquative sweats are common; the flush on cheeks and other physical signs disappear, and it looks as if amelioration was taking place; whereas, we have the grave process of suppuration of the substance of the lung; diffuse suppuration of pulmonary tissue, with parts remaining dense and impermeable; it is hard to drag through with incessant cough; thick, ropy, tenacious pus. In some cases the pus liquifies, and is expectorated, air begins to re-enter the affected lung, and resonance and a healthy vesicular murmur is restored. Often cases will, during the first and second stage, take on a typhoid condition. The tongue will become of a buff leather appearance, very dry and parched, or it may become red, like a piece of raw beef, or simply red at tip and edges, with elevation of papillæ; the character of the pulse changes to small, wiry and frequent; bowels generally in pneumonia are constipated, but when typhoid symptoms threaten, diarrhœa, sordes on the gums, petechia on skin, eyes sunken, nostrils pinched, face white, gurgling in right iliac, and tympanitic state of the abdomen.

No definite rule can be laid down as to its duration. About two-thirds of cases run thus: a week of infiltration or filling up, a second week in perfect consolidation, and a third in grey hepatization, which terminates in suppuration, extending over a period of months.

In any of its stages it is easily recognized; in the early stage its history, flush on cheek or cheeks, the rapid mal-assimilation, the anxiety or distress, the cough, difficulty of breathing, the rusty sputum or blood, pain in side, dullness on percussion at base of lung proceeding up, lack of intercostal movement, tubular breathing, rigors, fever, purple or livid appearance of skin, delirium, coma, etc.

As a very vital organ is smitten, pneumonia must be regarded as a grave affection, if it has passed the first stage; imperfect oxygenation of the blood gives rise to so many complications; besides, delirium, coma and lividity of the lips, nose, hands, face, as embolism in brain and heart, that render all cases very dangerous, and our prognosis must be guarded.

Treatment.—Perfect rest in bed in a room whose atmos-

phre is kept moist by steam, and at a temperature of 70° Fahr. If there be constipation, enemas and a dose of castor oil. Having ascertained the extent of the damaged lung, wet cups should be freely and closely applied over the part, and free bleeding from cups encouraged by hot fomentations, and then followed by hot poultices of flaxseed meal. This is a better local stimulant than turpentine or mustard. Poultices should be changed every three hours, spread about half an inch thick, and in size to cover a little beyond affected part, so that if both lungs are affected it will form a regular jacket. Poultices should be covered by oiled silk. Over and above all, there should be a firm flannel roller, wide enough to extend from the arm-pit to the bottom of chest. It should be pinned evenly and firmly, beginning at neck, inserting a pin every inch, and proceeding down to the bottom, so as to confine the ribs, stop intercostal movement, and cause the patient to breathe by the diaphragm. Outside of all, bladders filled with hot water should, as far as practicable, be placed at the sides, so as to keep heat in poultice. Patient must not be permitted to lie too long in one position, as it gives the blood a tendency to gravitate into the weakened lung structure and congeal; a change is very beneficial every two or three hours; heat to feet, and general treatment for fever; diet, warm milk, with about five grains of bicarbonate of potassa to the half tumbler full, instead of lime-water, and warm beef tea, one or other at regular intervals every hour; no other diet of any efficacy; eggs and oysters strictly prohibited; drinks are to be warm, and mucilaginous, as flaxseed, etc.

There are, now, three drugs that must be unsparingly and persistently given, and these are, veratrum viride, opium and sulphate of quinine.

A tablespoonful of tincture of veratrum viride, same amount of sweet spirits of nitre in four ounces or half a tumbler of water, of which one teaspoonful should be administered every half hour till pulse reaches sixty-five, and then at intervals of two or three hours, so as to check the current of circulation, so that when it passes through a weakened tissue effusion cannot take place—a balance maintained, a heart controlled, and by its influence on the connective tissue of lungs, prevents inflammatory action spreading into fresh parts. In some cases it is advantageous to combine a teaspoonful of tincture of aconite in the mixture; to be continued as long as there is any fever.

Opium or its alkaloid should be given in every case of pneumonia. It aids the action of the veratrum, prevents irritation, and so neutralizes the action of that drug that we are enabled to give it in larger doses. Besides, opium acts as a stimulant to the great sympathetic that so fully covers the

lower lobe of the right lung and heart. As soon as the veratrum is commenced, begin with the opium every three hours, and continue at regular intervals. The painful oppression of the chest and hacking cough soon disappears; the noisy and frequent respirations soon become quiet and slower; the cyanosis of the face and lips gives way to flush; the dry, scorching skin becomes cool and moist; the heart regains its normal force and regularity; its impulse, its sounds, its murmurs with the lung difficulty subside almost completely. It also counteracts the abnormal quantity of carbonic acid in the blood, and with the attainment of that object, languor and drowsiness disappear. Whether the crude drug or its alkaloid is selected, it must be borne in mind that the condition of the stomach is such that absorption is slow and imperfect; so to obtain readily the desired effect, it is best to administer it with an alkali; to facilitate its absorption and soften the effused products in the lung, such as opium pulverized, ten grains; Dover's powder, thirty grains; nitrate of potass, one drachm. Mix. Make twenty powders; one every three hours; or if the alkaloid is preferred, take one ounce of lemon juice; carbonate of potassa, enough to saturate; add to one ounce of cinnamon-water, to which add one grain and a half of morphia. Dose, one teaspoonful instead of the opium. The effects of potassa on the lungs is very marked indeed.

The next drug is quinine, without which there can be no successful treatment of pneumonia. Its action on the brain and great sympathetic is good, but in pneumonia, the size of the red corpuscles of the blood is diminished. Quinine restores them to their normal shape. Its presence in the blood is most salutary, when loaded with carbonic acid, in diminishing temperature. The dose should be such as will give a result, and continued, as it is freely eliminated by the kidneys, in alternation with the opium.

To relieve cough, a mixture of equal parts of syrup ipecac, squills, wild cherry and tolu, with muriate of ammonia, in half-teaspoonful doses. If there is tremor of hands, quivering of tongue, or delirium, alcohol in the form of brandy and milk or wine must be given.

Delirium, coma, blueness or lividity of skin due to deficient aeration of blood: tincture of belladonna with a solution of acetate of ammonia to maintain fluidity.

With the above treatment, during the stage of congestion and the early part of red hepatization, all signs of consolidation of the lung will give way and become absorbed, leaving the walls of the air cells unimpaired and elastic as before. Recovery is perfect, the breathing being mechanically and physiologically performed as in health. Neither is the inter-

lobular structure altered, and there is no permanent thickening of the lung or bronchial tubes.

The products of inflammation in a congested lung consist chiefly of exudation of fibrin, with liquor sanguinis, white and red corpuscles, and perfect absorption takes place. But sometimes cases have progressed too far, and about the end of the second week a change takes place; temperature goes down; there are rigors and sweats, and there is thick, viscid or mucopurulent matter expectorated, and the physical signs tell us that the lung is still solid but undergoing grave changes; the air does not penetrate it; bronchial breathing still continues, but changes which indicate softening and ulceration begin to appear.

Now our treatment must be changed to an alterative and tonic course, including iodide of potassa, tincture of iodine and ammonia; irritating plaster, so as to keep an open discharging sore over the consolidated part; diet changed to milk, cream, raw eggs, animal food.

If during an acute attack there are the slightest indications of typhoid symptoms, antiseptics at once; brewers' yeast in milk, tincture of iodine and carbolic acid, as in *Typhoid Fever*, every hour.

The degraded living matter in pneumonia in the early stage is chiefly bacteria, but at the end of the second week vibrios are often to be found on tongue, in urine and stools.

Chronic Pneumonia—In the large number of cases is confined to the lower lobe of the right lung. The patient may recover with that lobe perfectly consolidated, in which condition it may remain for years; or the products of inflammation may break down and recovery take place; whereas, in another class of cases, the non-aëration of blood and local irritation tells badly on the nerve-centres, and a degradation of living matter takes place, and we have the tubercular germ, or in other words, the ulcerative process of pneumonia changes into that of consumption of lungs—tubercular. It makes little difference how the inflammation originally started; its termination, unless managed with the very greatest nicety, is apt to take that course.

The treatment of chronic pneumonia is the same as should take place following any and every case of acute until the lung clears. Diet nutritious and generous, flannel clothing, daily bathing, followed by inunction of oil; bowels regulated, appetite stimulated with tonics; irritating plaster to be kept all the time, if possible, over the seat of consolidation. Encourage free suppuration. Iodide of potassa, carbonate of potassa in alteratives. Expectorants in sufficient quantity to keep down cough. In other words, a tonic and alterative course.

PLEURISY.

Inflammation of the pleura or serous covering which invests the lungs and inner surface of the thorax; is met with either in the acute, sub-acute or chronic form; confined to one side or to both.

The cause is usually exposure to wet or damp or cold, or fractured ribs.

The symptoms in the acute form are languor, debility, pain in head, back and calves of legs, chilliness, rigors and a fever, with hot, dry skin; temperature not so high, unless pneumonia, to a limited extent, exists— 101° to 103° F.; cheeks flushed; hard and quick pulse; increased frequency of respirations; an acute, lancinating pain in the side, called a stitch or catch, commonly below the nipple, over attachment of diaphragm on front of chest. This stitch or pain is aggravated by expansion of the lung in inspiration, coughing, or moving, or lying on affected side, and by pressure. A harsh, dry cough, with frothy expectoration; anxiety and restlessness; scanty and high-colored urine. Over the seat of stitch or pain can be detected, quite early, a friction sound, caused by the inflamed, congested and roughened surfaces of the covering of the lung rubbing against the pleura of the ribs. This rubbing resembles the rubbing of two pieces of brown paper or stiff silk against each other; generally best heard and even felt by the hand forty-eight hours after rigor, often earlier. It ceases when inflammatory action is arrested, or when the two surfaces become moist and smooth by effusion of serum, or when adhesions by bands of lymph take place from the affected surfaces, or when effusion is in great abundance.

The duration of an attack of pleurisy should be but a few days if properly treated; but if mismanaged, it may be run into some of its terminations or effects, or into a chronic form.

Effusion of serum may take place, to the amount of a few ounces or of several pints. It may be pure serum, liquor sanguinis, or serum and blood. When excessive it compresses the yielding lung, suspends its functions, displaces the heart, and somewhat distends the thoracic walls. This effusion is called hydrothorax.

When pleurisy terminates in a breaking-down of lymph, or suppuration or pus, which accumulates in the cavity of chest, it is called emphyema. When this occurs constitutional symptoms are more serious—rigors, febrile disturbance, often of a hectic character; tongue brown, dry and thickly coated; pus sometimes forms a bulging tumor in intercostal spaces; fluctuation can be detected, or sinuses may form at distant parts, and it may be evacuated; or ulceration of costal pleura may take place, pus finding its way through muscles and skin, and form-

ing a fistula in the chest; or, more rarely, the covering of the lung may be perforated, and the pus find an entrance into the air cells, and be expectorated.

Whatever the nature of the effusion, serum, or serum mixed with blood and liquor sanguinis, or lymph broke down (pus), it will cause, according to its extent, dullness on the lower part of the chest, extending upwards. The respiratory murmur of the lung is diminished. The chest may be so filled up that the lung may be compressed, so that little or no air can enter the bronchial tubes, so that no murmur can be heard. The fluid also prevents any intercostal movement. Patient cannot lie down.

Treatment.—Acute pleurisy should be treated with great energy, in order to prevent such grave complications. Wet cups or turpentine to redness over the seat of pain, followed with hot, moist linseed poultices, in which tincture of opium is freely incorporated; changed frequently. A flannel roller should encase the chest from the axillæ down to the base of ribs over poultice; the latter can be kept hot by bladders of hot water. Patient put to bed, perfect rest, avoidance of talking or full, deep inspiration; breathe chiefly by diaphragm, so as to prevent friction between inflamed surfaces. Then one tablespoonful of tincture veratrum viride, tincture of aconite and sweet spirits of nitre in half a tumbler of water, of which one teaspoonful should be given every hour till pulse reaches 70; then at intervals of two or three hours apart. Give half a grain of pulverized opium, five of Dover's powders in an infusion of pleurisy root every three hours, or double the quantity if there is not a speedy relief. Open bowels if confined; keep heat to feet. If the skin does not perspire well with pleurisy root tea, add compound tincture of serpentaria in half-teaspoonful doses. If symptoms are urgent, inject hypodermically one-third of a grain of pilocarpin; when it acts there is immediate relief and a cure; so it is unnecessary to lay down rules for diet or drink, which should be gruel, milk, broths, cream of tartar, water or lemonade.

With such new and definite remedies, we have the means of getting rid of all acute and sub-acute cases in twenty-four or forty-eight hours. Tonics, good, nourishing food during convalescence; quinine, in alternation with iodide of potass, is especially valuable.

Chronic Pleurisy may follow an acute or sub-acute attack, if inefficiently treated or in a feeble patient, or it may come on of itself.

There is no fever, rarely friction sound, but more generally effusions of lymph, with adhesions in the form of threads, bands, or ribbon-like exudations between the two pleuras, which

interfere with respiration, especially if deep, or with movements, as raising hands to face, turning sideways when the characteristic stitch is experienced.

As there is in all cases of chronic pleurisy adhesions going on, the best method of treatment is to build up the general health by good substantial food, well-regulated secretions, woollen clothing, rest for a few months. If that is not practicable, an avoidance of positions in which the catch is experienced; then a general alterative course, with iodide of potassa in alternation with tonics. Over the seat of adhesion, which is readily known by the stitch in certain postures, the irritating plaster should be kept constantly applied, spread fresh every morning, and if suppuration is not free, occasionally rub over with croton oil. The irritating plaster has a better resolvent action than repeated fly blisters or iodoform ointment. Usually about three or more months are necessary to break down a pretty firm adhesion.

The obstacle to free, deep inspiration, and that peculiar retraction of chest will disappear as soon as the adhesion gives way.

To Promote the Effusion of Serum in the Cavity of Chest.—The best of diet to raise the standard of blood; tonics to stimulate appetite. Try first effusion of squills and digitalis, followed with diuretics, diaphoretics and hydrogogue cathartics; those failing, alteratives and iodide of potass; all remedies useless, tap the chest between sixth and seventh ribs, two-thirds the distance from the spinous process of vertebræ to middle of sternum. The old-fashioned trocar and canula is better than the aspiration. In emphyema, aspiration should be performed several times. The thorax to be tapped long before difficulty of breathing, or threatened suffocation takes place.

PLEURODYNIA.

Neuralgia of the pleural nerves. It may also affect the intercostal. The nerves are weak from some cause and are irritated by rheumatism or the germs of syphilis. It is called false pleurisy.

Symptoms.—Great impairment of general health, attended by some morbid condition of blood, which gives rise to great mental depression and physical prostration. Phosphates and chlorides in urine. The pain or stitch is non-inflammatory, sharp, lancinating,—comes on and leaves suddenly. Although it is the cry of a nerve for purer, more nutritious blood, the lactic acid of rheumatism has much to do with it; still, often present in other blood poisons. Apt to come on if fatigued. More liable to affect left side than right.

Treatment.—Alteratives and tonics as to cause; irritating

or some stimulating plaster locally. Aconite, white bryonia and quinine; iodide potassa in fluid extract of asclepias. If no relief, hypodermic injection of morphia.

No depleting treatment admissible. The very best of food, ease of mind and rest of body.

PULMONARY CONDENSATION.

Infiltration or condensation of the lung structure may occur in various ways, outside of the ordinary process of inflammation or tubercular deposit.

Pulmonary Apoplexy.—The effusion of blood products into the air-cells of the lung and its coagulation there, may occur in any part of the lung; may be circumscribed or diffused, may be very small or occupy quite a large space. It is very apt to take place from the inhalation of such gases as chlorine, or may arise from disease of the heart, lung, blood-vessels or some blood disease.

In its treatment, the irritating plaster over seat of dullness; iodide of potassa with carbonate of ammonia in some vegetable alterative. In some cases, tincture of belladonna has a very resolvent action. Expectoration to be encouraged by mucilaginous drinks, linseed tea, marshmallow and squill.

Pulmonary Fibroid Infiltration.—Consolidation of the lung with fibrous tissue, when it becomes hard and tense, intersected with fibrous tissue, either in bands, or tough white deposits. This not only gives rise to dullness on percussion, but restrains the expansive movements of the lung, and no vesicular murmur can be detected. This form of condensation is often a result of pleurisy. The band or adhesion between the two pleuras, instead of simply adhering to the covering, penetrates into the substance of the lung and invades its substance completely.

A long alterative and tonic course. The local use of the ozonized clay over the seat of dullness continuously, if it causes no redness of the surface, is most advantageous. If it causes redness, its use to be suspended, when redness disappears, reapplied. The iodide of potassa, muriate of ammonia and belladonna are the best solvents. Time and a persistent use of those drugs are indispensable.

Condensation due to Collapse.—Perhaps the most common form of collapse is that due to a plugging up of the bronchial tubes with effused lymph in acute bronchitis, where the lymph acts as a plug or cork, preventing the inspired air from reaching the air-cells. This plugging up gives rise to alarming collapse of a lobe or entire lung. In very feeble subjects, children with whooping-cough or aged persons with bronchitis, the tubes may become plugged with matter from a sheer inability to expecto-

rate, and collapse and condensation follow. Stimulants, tonics, warm beef tea, may be tried, with local stimulants in the form of hot poultices, are the best remedies.

In pleuritic effusions the lungs are greatly compressed, and the margins are liable to be thickened, and in some cases, calcareous degeneration sets in.

Pulmonary Cancer.—The cancer-germ may find its way into the weakened structure of lung tissue, and manifest in its growth any of the forms of carcinoma. Irrespective of the cachexia, which is usually strong, the pain anterior and posterior in the chest is the best point upon which to base a diagnosis; because, the dullness on percussion, the lack of intercostal movement, the emaciation, sweats, difficulty of breathing, purulent expectoration and failure of the powers of life, are present in both consumption of the lung and chronic pneumonia. Its common location in the middle of a lobe is of no importance. The only hope of relief or cure consists in the very free use of hyosciamus and opium, and in the persistent administration of antiseptic drugs to destroy the germ, as ozonized saxifraga, ozone-water, chian turpentine, sulphur.

Pulmonary Gangrene.—The process of dying, or gangrene of lung structure may follow any form of condensation where the vital forces are very feeble. It is more prone to follow inflammation if the constitution is broken down by drink and excess, still not a necessary result. In any of the forms of condensation, if debility becomes great, loss of flesh rapid, heavy hectic fever and night sweats, pulse weak, face anxious, breath very offensive and the expectoration fetid, greenish, putrid, gangrene may be suspected. Gangrene in lung if limited to a small area is not necessarily fatal, although a vital organ has been smitten; if, however, it is diffused and spreads, the hopes of cure are not good. A stimulating treatment should be tried. Ammonia and cinchona, quinine and mineral acids, chlorate of potass and muriatic acid, inhalation of antiseptics. The best of nourishment, soups, milk, cream and alcoholic stimulants to arrest change.

PULMONARY CONSUMPTION.

Phthisis pulmonalis is due to the germ tubercle finding its way either into the mucous membrane of the bronchi or substance of the lung, and being deposited into weakened tissue from the blood. It not only localizes itself, but being a living body, if conditions are favorable, it grows with great rapidity. Before any form of tubercular consumption can exist, it is essential that the patient must have either inherited or acquired that blood disease, tuberculosis, a condition of impaired nerve force in which an alteration or change or degradation of living

matter takes place into the disease germ tubercle. Destructive changes in the lungs may take place from other causes, and the irritation which those changes produce invariably depreciates nerve force and brings about tuberculæ, such as:

In the glucose diathesis and chronic alcoholism, where the blood is loaded with grape-sugar, it so weakens the nerve centres, and irritates the large ærating surface of the lower lobe of the right lung that passive congestion takes place; patient becomes very tubercular, and he does not die from diabetes or the action of the alcohol, but from the tubercular germ eating up his lungs; pulmonary phthisis.

Again, in pneumonia, the effused products of inflammation not absorbed create an irritation; tuberculæ is acquired, and by and by, alongside the coagulum of inflammation, the germ tubercle is effused, and a destructive process of germ growth is set up.

Perhaps from a lift or strain a small vessel might rupture in a healthy individual, the blood congeal in the air-cells, irritate and depreciate the nerve centres, tuberculosis is engendered, and soon tubercle is deposited around that clot, and a destructive process established. And so with other foreign bodies, as fibroid tissue, solid particles in various occupations, and also the germs of syphilis and cancer.

These, of course, are complications and states of which we will not now speak, but fall back on our general definition.

The typical form of depression of the nervous system that gives rise to the degradation of normal living matter into the disease-germ tubercle may be hereditary or acquired, and when once established, contagious and infectious. Tubercle consists of small, round cells or cysts in a cellulose membrane floating in the blood, ready the moment any weakness takes place in a tissue to be effused with other products. Once that takes place, the countless millions of microscopical progeny in the mother-cyst or cell penetrate its walls, and grow, multiply and die like other living matter. Their growth, vitality and production depends a good deal on the amount of partial death present in the part, and its character. Tubercle differs from all other diseased germs and living matter in its process of death; they, in their healthy, active state, are albuminoid bodies; in their process of growth and death they become milky, then cheesy, then calcareous, or an inorganic body—phosphate of lime.

Of tubercular pulmonary phthisis there are two forms—acute and chronic.

Acute Phthisis Pulmonalis commences suddenly, with slight rigors, fever, rapid pulse, difficulty of breathing, cough, bleeding from lungs, hoarseness, loss of voice, lungs clear from top to bottom, profuse sweating, diarrhœa, rapid emaciation,

tubercle being only effused on the bronchial mucous membrane, called mucous or laryngeal phthisis. There is another rare acute form—lungs pretty clear, but mottled all over with tubercle, like grains of barley, chiefly in middle and lower lobe; patient dies early in both forms from apparent exhaustion.

Chronic Pulmonary Phthisis.—This is a common form generally met with in the germ tubercle, finding its way into the weak structure of the apex of the upper lobe of the left lung, spreading downwards on the apices of both lungs, and growing and effusing from above downwards. There is first effusion of tubercle in weakened structure, then growth, prodigious multiplication of germs, which soon interfere with passage of air into air-cells. Then nature desires to protect herself from the presence of those bodies; she excites less or more inflammation around them; lymph is effused around the germ tubercle, and encloses or encysts it; and between the disease-germ and inflammatory products, the lung becomes solidified in its substance, and does not permit ingress of air. After an indefinite period the germ dies, yields to the influence of adverse conditions, and is expectorated or absorbed either in its albumenoid, milky or cheesy state, leaving a cavity in the lung. In more rare cases there may be deposit of tubercle in the middle of a lobe; it may grow by aggregating other germs, or of its own innate property, and form a mass albumenoid, milky, cheesy, and finally calcareous, and break down and be expectorated, leaving a vacuum, cavity, or cavern in the lung; the formation of such a cavity is called a vomica. The germs of tubercle may be deposited in the nerve centres, sub-mucous coat of stomach and bowels, in mesenteric glands, liver, and kidneys.

The predisposing cause of pulmonary consumption is the presence of tubercle in the blood; the exciting cause is some irritation, as cold, damp, dust, foreign bodies, mechanical strains, lifts—any thing we can imagine that would weaken the vital capacity of the bronchial mucous membrane or lung substance.

Symptoms.—Languor, lassitude, debility, with increased heat; respirations and pulse ninety to one hundred; emaciation, protuberant eye balls, clubbed nails, loss of hair; cough at first dry, subsequently expectoration, difficulty of breathing, hæmoptysis or spitting of blood, night sweats, hectic flush on cheeks, burning sensation in hands and feet, indigestion, loss of appetite, loathing of fatty articles, weakness of voice, hoarseness or loss of voice; a festooned appearance at reflected edge of gums, often diarrhœa; often a dull, aching pain in shoulder blades. The increase of heat and wasting bear a direct ratio to the germ growth and deposit. When tubercle is deposited in the sub-mucous tissue of the bronchi, or on its free surface,

symptoms are greatly aggravated, and bleeding from the lungs more common; often slight congestion of liver and kidneys, so that urine often contains sugar or albumen. In women, cessation of the uterine function is common. As the case progresses, the debility, wasting, sweats, and other symptoms become worse and daily more marked. Diarrhœa, at first due to altered or acid secretions, is now dependent on the germs in the coats of bowels, and to ulceration about ilium and colon; aphthæ about mouth and the fauces; tenderness and cedema of extremities; mental faculties usually remain clear until death.

Now all the above symptoms are easily explained by the presence of a disease-germ in that fluid. This germ may have lain quiescent for many years in the blood, ready to spring into activity the moment conditions favorable for its growth should take place, and the pabulum adapted for its nutrition should be at hand. It is also true that if a high standard of health could be maintained by the affected individual, the germs would undoubtedly die out. The tubercular germ in a state of activity uses up in its own nutrition, growth, and development the vital elements of the blood and tissues.

Physical Signs.—If it is the bronchial form, lungs will be clear from top to bottom; hoarseness, loss of voice, and hæmoptysis predominant. If it is the lung or chronic form, dullness at the apex of left or both lungs, proceeding downwards; if consolidation is not perfect, feeble or harsh respiratory murmurs may be detected, audible and prolonged—perhaps a faint crepitus or dry crackling; if tubercular deposit is heavy, there is flattening of ribs and absence of intercostal movement. The dullness on percussion is decided, and as the case progresses, deficiency of chest movement. As tubercles die and are being expectorated, small and large crepitation. If tubercle has eaten away lung substance, there will be a sinking in or retraction of intercostal spaces, and there may be an unusual clearness on percussion. The respiration will be cavernous, as coming from an empty cavity; the upper lobe of right lung may be dull on percussion in disease of the liver—passive congestion without tubercle. As a rule, tubercle deposits itself in apex, and proceeds down; inflammation at base, and proceeds up. Tubercle may be deposited at base in chronic pneumonia, in chronic alcoholism and diabetes.

It is the custom to divide it into stages: (1) of effusion of tubercle; (2) perfect consolidation of lung from tubercular deposit or growth, or both; (3) death or breaking-down of the living mass. It is often complicated with asthma, bronchitis, pleurisy, etc.

It is impossible to speak of its duration with any degree of precision. The bronchial is rapidly fatal, unless well man-

aged; the deposit in lung essentially chronic, and admits of retardation, and often of a good cure with proper remedies.

Pulmonary tuberculosis is contagious and infectious. The living particles of tubercle are so minute as to be supported by the atmosphere, and carried from individual to individual. It is not pre-eminently contagious, like some forms of contagious disease-germs, but it is certain that the living, growing tubercle escaping in the breath, and breathed in by another, will contaminate. This living contagion is to be much dreaded in our country, in which mixed races exist, because the passage of the germ from opposite races increases its virulence or activity. There is also a giant form of germ tubercle among our domestic animals, as chickens, pigs, cows, horses, sheep, from whom man may receive the contagion by breath, and whose flesh is unfit for food.

Etiology.—When the adverse condition of vital force takes place, when living matter is degraded into the germ tubercle, the whole of the tissues and structures of the body undergoes great changes. The hair becomes dry, like tow, the skin thin, muscles soft and flabby, bones with marrow deficient in proper material, secretions sluggish, acidity and dyspepsia, and general impairment of vitality, with the presence of the germ in a weakened structure, its slowness or rapidity of growth being dependent upon the condition of vital force. A truly gigantic disease, when extreme, terminates in non-procreation.

The Treatment will have to be laid down under general heads.

(1.) *General Rules.*—Every possible means to improve the general well-being and comfort of patient, good reading, moral and religious surroundings; improvement of general nutrition by every possible means, the best of food for making rich blood; abode to be healthy, city in winter, sea or mountain air in summer, an even temperature, exercise in open air, never to fatigue, driving, sailing; well ventilated apartments; flannel or silk next the skin; daily tepid sponging or bathing, followed by brisk friction with towel, flesh brush, dry hand; every possible means taken to increase strength or vital stamina, secretions of bowels and kidneys to be stimulated; appetite promoted by tonics.

(2.) *Diet* to be rich in blood elements, but to be varied, animal and vegetable; the most nutritious animal food; if stomach fails to digest, follow with pepsine; warm milk from cow; cream, raw eggs; extract of malt; Iceland moss and quinine jelly; wine, bitter ale; an interval of not longer than three hours between meals; besides, abundance of diet, ripe fruits.

(3.) *Location.*—Seaside or mountain tops in summer, chiefly for ozone. Sea air, besides, has iodine and bromine. Change

is very beneficial in early stages. Patients requiring a soothing, moist atmosphere should go to Florida; those a bracing, vivifying air, Colorado. Mountain climate is often of great service.

(4.) *Local Applications to Chest.*—In all cases some stimulating application over devitalized part, so as to raise standard of vitality, promote absorption. Nothing superior to the irritating plaster. If it cannot be borne, iodoform ointment, belladonna, aconite, and chloroform, or croton oil liniment, or dry cups, etc.

(5.) *Remedies to palliate, mitigate, or arrest excessive waste.*

If the wasting is a prevailing and persistent symptom, bathe or sponge off the chest and back with soap and tepid water, dry well, rub or shampoo, or palpate by a vital or young person, then rub in four or more ounces of warm olive oil every night before bed-time, rubbing or shampooing gently till it has made its way into the skin. Extract of malt or Bass's ale arrests to a certain extent waste going on. *If there is fever, heat, respirations, and pulse up*, which means vitality down, tincture of aconite and digitalis should be given to keep the pulse at seventy. *If there be acidity and indigestion*, compound tincture cinchona and mineral acids, aromatic sulphuric acid and quinine, or gentian or kurchicine.

If there be any diarrhœa, a pill of equal parts of opium and tannin, a grain of each after every movement of bowels when they exceed one per day. *If there be hæmoptysis* or bleeding from lungs, digitalis, erigeron, gallic acid, oil of turpentine, and sulphuric acid, tannin and nitric acid. *To check night-sweats*, aromatic sulphuric acid and quinine, or nux vomica. *To relieve cough*, syrup senega, squills, ipecac., tolu, lobelia, marshmallow, slippery-elm, flaxseed tea and lemon juice, raw eggs and salt; or syrup of poppies with ammonia. *To lessen expectoration*, inhalations of turpentine or carbolic acid. *To procure sleep*, extract of hyosciamus and opium. *To procure absorption of dead germs*, iodine and bromine. *For the relief of hectic*, aromatic sulphuric acid, sulphurous acid, and other antiseptics.

(6.) *Remedies to destroy the micro-organism tubercle by inhalation, and promote its absorption or elimination when dead.*

The fever of phthisis, the afternoon or evening exacerbation of hectic, is not due to inflammatory action but to putrid infection of tubercular products. Tuberculosis is an infectious disease of germ origin, induced by certain micro-organisms, generated in the body and multiply in it, and the only rational means of curing it is the employment of means calculated to annihilate these organisms. There can be no doubt that pulmonary consumption can be propagated by direct infection from man to man, and from animals to man, and man to animals. The unity of the tubercular germ has been fairly ascertained, the

same in the lungs as in the lymphatics, and we have to deal with a disease of germ origin readily infectious, and we have thus a clear indication for antiseptics, both local and internal. In pulmonary phthisis, the toxæmia is attributable to two causes: the germ itself, and the chemical factors of death and absorption.

Volatile antiseptics, in an oral nasal respiration, are attended with great benefit; such a formula as iodoform dissolved in sulphuric ether, then add alcohol, chloroform, and carbolic acid in sufficient quantity. Place in a respirator or saturate a sponge and inhale.

The inhalation of carbolic acid alone proves very beneficial. It destroys the germs, being so destructive that an appreciable improvement takes place at once. It should be used frequently either in a steam atomizer or a common pitcher of warm water.

Benzoate of soda, in solution five per cent. in an inhaler for half an hour each day, is an agreeable and efficient change.

(7.) *Remedies introduced into the stomach to destroy tubercle in the blood.*

Ozonized glycerine, in doses of from half to one teaspoonful thrice daily, is one of our best remedies as a scavenger in diseased blood, destructive to all micro-organisms or disease-germs, and at the same time vitalizing to healthy blood. Ozone-water also of great utility.

Carbolic acid and tincture of iodine: two drachms of carbolic acid, one of tincture of iodine; two drachms of muriatic acid, one drachm of oil of eucalyptus, first rubbed up in sugar and then added to half an ounce of alcohol, all to be added to fifteen ounces of water; a teaspoonful to be given every two hours.

Hypophosphite of potassa, in five-grain doses, has also a marked destructive effect on the germ; best administered in extract of meat.

As a change, the chlorate or permanganate of potassa not to be overlooked.

Chloride of lime, in doses of three or four grains, in sweet milk or glycerine immediately after meals, has great efficacy in destroying the germs, arresting the night-sweats, healing and drying up pulmonary lesions. The following preparation is more stable and elegant: Carbonate of lime, two ounces; saturate with muriatic acid and then add six ounces of water, then filter. Each drachm contains sixteen grains of the salt and can be given in water or milk.

Sulphur, sulphur-water, sulphurous acids, are anti-germ drugs and are of utility.

(8.) *Alteratives and tonics.*

As phthisis is essentially a chronic disease, a general alterative course is advisable to effectually cleanse out the debris of

dead germs and aid in overcoming the cachexia upon which it originally depended; tonics are not to be overlooked; so that a general course is very proper for some months. Vegetable alteratives, as *phytolacca*, *stillingia*, tag alder, *corydalis*, and tonics, as *cinchona*, *hydrastis*, mineral acids.

In the treatment and cure of consumption, the very depths of science, the whole range of art, should be ransacked for antiseptic drugs, like the glycerite of ozone, to kill the germ and reconstruct shattered vital force; and no stone must be left unturned when we can see any reasonable prospect from local or general treatment. But while we urge upon the profession and the suffering wrecks of humanity in our midst the imperative necessity of antiseptics, still the use of hygienic measures, aided by a proper climate, does much for the prolongation of life and the arrest of the disease. Hygiene, pure air, a warm, even temperature, an avoidance of all insanitary conditions, are trusty aids in treatment, and should never be omitted; but antiseptic drugs and an ozone atmosphere that will enter and permeate the pulmonary circulation act most effectively on the disease in lung tissue. By such measures, combined with constitutional measures, we can do much in the way of cure; and even if the enemy gains a foothold in the fortress, we may, by strengthening the garrison, cause him to be expelled and the breach repaired. The arrest of consumption is undoubtedly due to the good judgment of the physician in charge, and to his adaptation of the means at his command.

CANCER OF THE LUNGS.

This is rather a rare disease, but when met with is usually of the medullary form. The very spongy and elastic structure of the lung enables the cancer germ to deposit, to grow and breed with a rapidity that is truly astonishing, consequently the entire mass consists of pure germs.

The symptoms may resemble pulmonary tuberculosis or may be obscure, but the pain, anterior and posterior, will be our best guide to a correct diagnosis. The cachexia is also well marked. Treatment is of no avail. Nevertheless all the symptoms should be mitigated, the sensorium blunted with *hyosciamus*, *conium* and *opium*, so that the patient does not experience the terrible pain incidental to the disease.

DISEASES

OF THE ORGANS OF DIGESTION:

MOUTH, STOMACH, BOWELS.

DISEASES OF THE MOUTH.

The tongue is exposed to many sources of disease and injury. It is a highly sensitive organ; hence, slight affections of its mucous membrane or its muscular fibres are highly painful.

Glossitis.—Inflammation of the substance of the tongue is a rare affection, since mercury has been nearly discarded from practice; when it occurs it is usually dependent upon constitutional causes, or some irritation applied directly to the organ.

In either case there is fever, great nervous depression, and debility. The local symptoms are those of pain, heat, redness, swelling. The tongue becomes of a very deep red color, and so swollen that it fills and protrudes out of the mouth. It usually comes on quickly, and is often attended with urgent symptoms, and requires prompt treatment, as active purgatives, followed by hypodermic injections of one-third of a grain of pilocarpin, heat to feet, poultices of slippery elm to tongue, and suppositories of veratrum viride and gelseminum per rectum. If mercury is the cause, iodide of potassa, chlorate of potassa gargles, and sulphurated potassa baths, or both.

Ulcers, Cracked, and Other Morbid States of the Tongue.—The tongue is not only an index of the condition of the stomach and alimentary canal, but often a valuable criterion as to the state of the nervous system, and intensity of blood poisoning.

(1.) *The Strawberry Tongue* of scarlet fever, the raw, fleshy-looking tongue of gastritis, the patchy, ulcerated tongue of typhoid fever, and other states of great exhaustion. The soreness in the organ is relieved by bland food, mucilaginous drinks, smearing it with vaseline ointment, or using mouth washes of chlorate of potassa and glycerine, or borax and honey in infusion of bayberry.

(2.) *Ulcers, the Result of Mal-nutrition*, or of inflammation, or irritation from old stumps; the removal of the cause, the use of emetics and bitter tonics. As those ulcers are generally very small, superficial, without definite shape, very sensitive, most numerous at tip or bridle; in addition to internal tonics they are readily cured by infusions of golden seal and borax, or sage-tea and borax.

(3.) *Mercurial Ulcers* are common; not so much to internal exhibition of mercury as to the use of amalgam in filling teeth, especially large cavities. They are very easily recognized by the fœtor of the breath, affection of gums, salivation. The removal of the cause; the use of chlorate of potassa as a mouth-wash, and iodide of potassa internally.

(4.) *Syphilitic Ulcers* are easily recognized by their copper-colored appearance. In mild attacks most common on front part of tongue and edges and superficial aspect; in more aggravated cases they occupy the root, and are deep and intractable. The general treatment for syphilis, with mouth-washes of infusions of sage and borax, hyssop and chlorate of potassa, golden seal, gold thread.

There are also tuberculæ, cancerous, and other forms of ulceration; constitutional remedies, with local antiseptics.

(5.) *Cracked Tongue*.—They may be fissures, transverse, if intestinal irritation; or longitudinal, of kidney irritation; or, more generally, they are the clefts and fissures of mal-assimilation, forming a series of irregular grooves often quite deep, rendering eating, speaking, or reading difficult and painful. Cured by sage-tea and borax, glycerine and chlorate of potassa, golden seal and alum.

(6.) *Surface of Tongue* often presents patches of baldness, one or more smooth oval patches; no ulceration or fissure, indicative of a syphilitic taint; alteratives and tonics.

(7.) *Warts* are usually met with at the edges of the root of the tongue, and are presumptive of syphilis. Condylomata are not uncommon in same disease. Papillary patches, thickening, induration, give an unpleasant feeling to the organ in speaking, causing thickness of speech called psoriasis and ichthyosis; often precursor of cancer.

(8.) *Hypertrophy of Tongue* is rare; when it does exist, it is so large that the mouth is too small for it. In some instances it protrudes as far as the chin. Its removal by ecraseur is the only cure.

(9.) *Tongue-tie*, when the frænum or bridle is shorter than usual, the movements of the tongue are interfered with, the bridle has simply to be cut.

(10.) *All Kinds of Tumors*, fatty, fibroid, encysted, etc., are met with here; extirpation is the proper remedy.

(11.) *Ranula* (so called because the voice is said to be croaking like a frog's), is a semi-transparent fluctuating swelling as large as a walnut, situated under the tongue. It consists of a dilation of Wharton's duct of sub-maxillary gland. Painting it with the perchloride of iron, or passing a seton through it, is usually sufficient to effect its disappearance, using mouth-washes to heal and strengthen.

Cancer of Tongue may be of the medullary, scirrhus, or epithelial form. Whichever it may be, there is a tendency to speedy ulceration. A foul, sloughy sore forms, with ragged edges and indurated base.

Symptoms.—Cancerous cachexia, severe pain, profuse salivation, difficult articulation and deglutition, attacks of hæmorrhage, great swelling of the whole organ, often sloughing, cancerous deposits in all the surrounding parts; mouth may be filled with a cancerous mass, threatening suffocation; disease is very rapid in its course.

Treatment.—Pain must be alleviated with opium and large doses of conium or hypodermic injections; nutrition kept up by milk, cream, raw eggs, juice of beef. Remove cancer with the ozonized chloride of chromium in paste or in liquid. General treatment for cancer.

TOOTHACHE.

Toothache from Caries.—Softening and decay of denture, causing great pain when the central pulp is reached. This is the most common form of toothache, and is due to tooth starvation, the patient's diet being devoid of phosphates. He eats no corn bread nor uses oatmeal, and the bony elements of flour are destroyed with alum and other deleterious baking powders. Heat and cold are also destructive; so are disease-germs or their micrococci in the mouth; but the great increase in decay of teeth at an early period of life is due to the increase of nervous diseases which correlates to the deterioration of the teeth, each influencing, and, in a measure, causing the other. Besides, the modern system of over-stimulating the nerve force by a too early education, causing a defective power of assimilation and tissue formation, especially in the teeth. It may also be due to the malformation of enamel and bone; to the use of mercury, germs of tuberculæ, to indigestion, improper care of the teeth. It may be reflex, as in pregnancy.

Treatment.—Removal by scraping away of decayed portion and then stopping with gold or gutta-percha; no amalgam used, as it causes mercurial disease; extraction; troublesome hæmorrhage to be arrested by washing out cavity; saturating cotton wool with a solution of tannin or perchloride of iron, and a piece of cork to cause pressure when jaws are closed. If

necessary, tie the lower jaw firmly against the upper with a bandage.

Toothache from Inflammation of Pulp.—When the pulp has been bared, irritation may be set up by food, cold or hot drinks, candies, etc.

Treatment.—Wash mouth out with a strong solution of tepid water and bicarbonate of potassa, and stop the tooth with a mixture of tinctures of aconite, belladonna, and chloroform, or apply chloral. If that fails, drill into pulp cavity after stopping.

Toothache from Necrosis of Fangs.—The crown and neck of the tooth may be healthy and yet the fangs diseased. There may be a rheumatic irritation of the periosteum, which causes the tooth to feel longer than its fellows, and if pressed upon gives great pain. This may give rise to abscess again and again, which terminates in necrosis. Instead of necrosis there may be thickening of the fang and bony deposit.

The use of iodide of potassa, with general attention to organs of digestion, may be tried; all failing, extraction.

Toothache from Neuralgia.—Neuralgic toothache from mal-nutrition, gout, rheumatism, mercury, malaria, etc., are very common.

General treatment should be tried; aconite, belladonna, nitrate of amyl, quinine, sumbul, and attention to the secretions.

APHTHÆ.

This affection consists of a change or alteration or degradation of the living matter concerned in the nutrition of the mucous membrane of the mouth into the disease-germ *oidium albicans* and *leptothrix buccalis*. It is a pure degradation of living matter in the mucous and sub-mucous coats, and first exhibits to the naked eye a point of redness, small, round, then effusion, which elevates the speck into a small blister or blisters; they may be numerous and remain isolated, or coalesce and form patches; they may occur on the tongue, cheeks, gums, or extend down the œsophagus.

Cause.—Anything that will depress the nutrition of the mucous membrane, as mal-nutrition, the germs of tubercle, syphilis, and poisons of mercury, lead, etc., and when once caused is contagious and infectious in itself, and has the faculty of carrying other germs with it; that is, for example, in syphilitic aphthæ, the *oidium albicans* can carry with it the germ syphilis. There is generally associated with aphthæ great constitutional debility.

Infantile Aphthæ—Is very apt to arise from the imperfect cleansing of the mouth, or the child being permitted to lie with the nipple in its mouth. Particles of milk lodging in the cre-

vices of the mucous membrane become sour or rancid, and give rise to irritation of the mucous membrane; or it may be due to heated milk from over-work on the part of mother, or the lactiferous fluid may be bad. It may come from diseased children kissing each other, or diseased adults kissing healthy babes. Once the disease-germ is developed in the child's mouth, the nipple of the mother becomes similarly affected; vesicles forming, then cracks and fissures, filled with colonies of *oidium albicans*.

The general health suffers. The child becomes irritable and restless; some fever, debility, cough, vomiting, diarrhœa, and general want of nutrition.

The small white blisters become ulcers on the tongue, cheeks, gums, palate, tonsils; breath is fœtid, and if they extend down there may be difficulty in swallowing; and if there be much debility, the case may merge into ulcerative stomatitis or *can-
crum oris*.

Treatment.—General attention to the health of both mother and child; administer remedies to correct any indigestion; keep bowels open with neutralizing mixture or compound liquorice powder; swab or wash mouth very gently with borax and honey, or borax and sage-tea, or chlorate of potassa and glycerine, applying the same remedies to nipple, and following them with a thick coat of vaseline or ozone ointment. In the infantile form the disease-germ is readily destroyed by those remedies.

In adults there is usually some prostrating disease or great debility, and the *aphthæ*, or rather the *oidium albicans* are developed in great numbers between the epithelial cells of mucous membrane, forming dirty, diphtherial-looking membrane, the spores of the germ spreading in all directions, rendering the mucous membrane loose, soft, and friable; here the use of borax and glycerine. It is necessary to use sulphite of soda, sixty grains to the ounce of water; wash out three times a day, and at other times chlorate or permanganate of potassa; besides, those or other antiseptics, such as brewers' yeast, carbolic acid and tincture of iodine, as in typhoid fever, with bland, nutritious diet, compound tincture cinchona, mineral acids and alteratives.

The Tubercular form is very common, usually associated with tubercular laryngitis, or bronchitis, or pulmonary phthisis.

The Syphilitic form is recognized at once by the copper-colored appearance of the mucous membrane and ulcers.

The Mercurial by the fœtor of breath and metallic appearance of the ulcers.

In those varied forms, mouth-washes and gargles of chlorate potassa in infusion of golden seal, or sulphurous acid in infu-

sion of hyssop or gold thread, with general alteratives and tonics.

With seventy-five per cent. of our population tuberculous, and fifty per cent. tainted with syphilis, and aphthæ so common, the habit of kissing should be carefully guarded. Simple aphthæ is of little moment, but when it carries with it danger of syphilitic contamination, it is a matter of great importance.

INFLAMMATION OF THE MOUTH.

Inflammation of the mouth is sometimes met with in young children. It occurs in three forms, confined to the mucous follicles, substance of the gum, or in the tissue of the cheek; in no respect does it differ from aphthæ, only as to its mode of organization.

(1.) Follicular Stomatitis.—Inflammation of the mucous follicles may arise from mal-assimilation; more generally it is a sequel of fevers, especially the eruptive.

Symptoms.—Great difficulty in nursing, abundant flow of saliva, glands of neck and throat tender, restlessness and fever, loss of appetite, diarrhœa, offensive discharges, vesicles in mouth and tongue and fauces, vesicles burst and form ulcers, which are covered with dirty or yellowish sloughs.

(2.) Ulcerative Stomatitis is simply the follicular form progressed on to ulceration of the gums. Here the symptoms are all aggravated, profuse salivation, swelling of lips and glands of throat; gums become red, swollen, of a violent color, and covered with a layer of pulpy greyish matter. If disease proceeds, gums become destroyed by ulceration; teeth become exposed, and are loosened; irregular sloughing.

(3.) Gangrenous Stomatitis, or *canerum oris*. Sloughing phagedema of the mouth follow the above, if there is great debility and overcrowding. The sloughing extends over cheeks and gums, lips, saliva copious; breath horribly offensive; great constitutional disturbance; complications are liable to occur.

Treatment.—We must bear in mind the nature of stomatitis; that in its first stage it differs little from aphthæ in its cause, in its disease-germ origin, in its symptoms; vital force is lower, and superadded to the *oidium albicans*, there are numerous bacteria. That in its three forms it can be communicated from individual by local contact, and probably by contagion and infection. The cause is a living poison.

Disinfectants should be exposed in the apartment; the mouth should be washed out every hour with either a solution of chlorate or permanganate; the carbolic acid and tincture of iodine administered every hour; juice of raw meat, milk, cream for diet. Aphthæ in debilitated children, improperly nourished, and subject to depressing influences of overcrowding, becomes gangrenous diarrhœa.

Since both conditions are found to depend upon the presence of disease-germs, and a rigid antiseptic treatment inculcated, we have few aggravated cases of this once terribly fatal disease.

BUCCAL GLANDS.

Those glands in tubercular patients are often the seat of inflammation and tubercular effusion. The chain of glands, corresponding to the molar teeth, are generally those that become affected. They become as large as peas, and, in very aggravated cases, like small marbles.

As a general rule, they are very promptly influenced by iodide of potassa internally, and an ointment of phytolacca, iodide of potassa, and muriate of ammonia locally to the cheek over nights.

The general treatment for tuberculæ in all cases must be inculcated; and if there is any source of irritation in the mouth, it must be removed.

ACUTE TONSILITIS.

Inflammation of the tonsils is one of the most common affections of the mouth. One or both tonsils may become affected.

The predisposing causes are weakness of organization, a tubercular diathesis or enervation of the glands by mercury, other poisons, etc. The exciting causes are cold, damp, exposure, cold drinks when body is heated, seasons of the year, as winter, spring, vicissitudes of temperature; common in all periods of life.

Symptoms.—Those consist in the usual languor, lassitude, debility, rigors, and a fever of a pretty high grade. The tonsils and adjacent parts become sore, tender, painful, red, hot, and swollen. There is also great pain and difficulty in deglutition; return of liquids through the nostrils in attempting to swallow; there is pain along the eustachian tube and deafness; glands exude considerable mucus, so that the throat is filled, and gives rise to some hawking and spitting; respiration may be affected; the parotid gland at angle of jaw sympathizes; tonsils can be seen often, if double, almost meeting at root of tongue.

Its duration is from four to ten days. It may terminate in resolution, but apt to return on exposure; or it may terminate in effusion of lymph, with thickening and induration, or in breaking down of lymph, abscess. If indurated or hypertrophied, will alter the voice.

Treatment.—Patient to be kept in bed; warm room; the administration of an emetic of lobelia and capsicum is attended with good results; to be followed up with large doses of tincture

of aconite and belladonna; mouth and throat washed out every hour with chlorate of potassa and tepid water; heat to feet, and general treatment for fever; locally to the angle of the jaws, heat and moisture, poultices with mustard. Patient an adult, the hypodermic action pilocarpin might be tried; it often breaks up most severe attacks. Its diaphoretic action is excellent, but it has a special action on the tonsils in stimulating them, and causing them to disgorge the inflammatory products with which they are loaded. If young, better to use the acetate of ammonia in alternation with compound tincture of serpentaria. Those two remedies act kindly and speedily. Just as soon as fever abates, begin with doses of iodide of potassa, ranging from five grains upwards, every three hours.

If suppuration seems to be inevitable from the presence of rigors, pain changed to a throbbing one, and by the appearance of a yellow speck on tonsils to the eye, or sense of fluctuation to the touch, then let the patient inhale hot vapors of ammonia, poultice assiduously, and when ready for evacuation of the pus, administer a good, smart emetic of lobelia. In the straining efforts at emesis, the contents of the tonsil is freely discharged, and a rapid recovery takes place under good diet and such remedies as compound tincture cinchona and aromatic sulphuric acid. If any soreness or induration remains, chlorate potassa for a gargle, and iodide internally.

CHRONIC TONSILITIS.

Once the tonsil has suffered a partial death, it is very liable to become irritated by very slight causes. This repeated, spring and fall, soon tells disastrously on the medulla oblongata, and the patient, after suffering a few attacks, becomes tubercular; so that in chronic inflammation we usually find tubercular deposits in the tonsils. In the chronic form there is little soreness or heat or pain, but a vast deal of effused lymph or tubercle thrown out, and as the gland is very vascular, they often become enormously hypertrophied; the enlargement being so great that they meet on tongue, causing thickness of speech and obstruction to swallowing and even to inspiration.

In such cases, don't think of exusion, as there is danger in such a proceeding. Put the patient upon iodide of potassa with a vegetable alterative, changing the alterative weekly but not the iodide. Paint tonsils once or twice a week with tincture of iodine and iodide of potassa, equal parts, to the angle of jaw externally; apply every night ozone clay, which can be removed during the day and applied only at night.

While pursuing this alterative and absorbent treatment, tonics, as quinine, mineral acids; best of diet and everything done that tends to build up vital force. Give remedies a fair

trial, and there will scarcely ever be any need of surgical proceeding.

CANCER OF TONSIL.

Cancer of tonsils is recognized by the diathesis, the pain, and when ulcerated by the fœtor. In its treatment, the brushing it over with the ozonized solution of chloride of chromium, destroys the germinal muci, which will be thrown off in a few days, when washes of permanganate and the usual treatment for *Cancer* resorted to.

EXHALATIONS FROM TONSILS.

The tonsil, like the nose, axilla, and feet, are very abundantly supplied with sebaceous glands, whose function is to eliminate sebaceous matter which ought to be thrown off by the liver. When the liver suffers depression, irritation by alcohol or mercury, or when it is diseased or suffers degeneration, it becomes unable to work off the carbonaceous matter from the blood, and the sebaceous glands have to do its work. Those glands of the tonsils become very active, and exhale carbonaceous and other matter freely, and is one of the most common causes of fœtid breath. In the largest proportion of cases, it is not the teeth, nor the imperfect digestion, nor disease of the lung, but the liver that is the cause of fœtor of the breath.

The proper treatment is to attend to the liver by the proper remedies; at the same time, mouth-washes of borax and sage tea, or infusion of hyssop and chlorate of potassa. An avoidance of carbonaceous food or drink, as fat, sugar, alcohol, beer.

PAROTITIS OR MUMPS.

A specific and highly contagious form of inflammation of the parotid gland. There is to be found on the tongue, mucous membrane of cheek, gums, saliva, a special micro-organism or disease-germ, which, being exhaled by the breath, is capable of spreading this disease by contagion and infection. This germ originates in the degraded living matter of our own bodies; how, we cannot tell, but man is responsible for their origin or conditions favorable for their production and dissemination; that the parotid is their favorite pasture-field, provided the gland is weakened in any way; for we find if we raise the standard of vitality of that gland, the disease-germ seeks devitalized glands or structures analogous in character, as the mamma, ovaries, testes, and brain.

In the blood of all persons affected with mumps are to be found an abundance of the minute organisms, for the most part spherical, but partly prolonged and in the form of mobile rods.

Symptoms.—Usually a period of incubation, with the ordi-

nary indications of debility, followed by chilliness and fever, with pain in head, back, and limbs; pain and swelling over one or both parotids, stiffness of jaw, some soreness in swallowing. Fever and inflammation reaches its height in four days and then declines, occupying about a week in all. If any stimulant is applied to the parotid, germs leave and cause inflammation of mamma, testicle, etc.

Treatment.—Rest in bed; aconite and belladonna freely; dry covering over angle of jaw, but no heat or stimulants; warm foot-bath, heat to feet, open bowels; diet, warm beef tea, milk. To destroy germs in blood, solution of acetate of ammonia, or chlorate and permanganate of potassa. If there is much debility, quinine.

Inflammation of the Parotid may take place from cold, disease-germs in the blood, as in scarlet fever, small-pox, tuberculae, syphilis, mercury; and it then demands a very different form of treatment.

During the acute stage, arterial sedatives and hot poultices, with general alterative and tonic treatment as to cause; and if the gland becomes enlarged, the ozonized clay is a remarkable solvent, even in tubercular cases; or clay on during the day and poultices at night. Iodide of potassa, with phytolacca, iris versicolor, saxifraga, are important internal remedies.

PHARYNGITIS.

Inflammation of the pharynx is a very rare form of disease. We meet with it occasionally in terribly broken-down conditions, where the vital forces are at a low ebb, mal-nutrition and mal-assimilation extreme, as we often find it in the degrading haunts of poverty and vice; and when it occurs, it is mostly erysipelatous or bacterial, and is attended with great prostration, low fever, and difficulty in swallowing. Death takes place from exhaustion.

Our remedies, then, are to get the patient into a better atmosphere; abundance of antiseptics or disinfectants around. Administer quinine freely; give brewers' yeast in tepid milk every three hours. Diet, beef tea, with barley, raw eggs.

Syphilitic Ulceration of fauces and pharynx often causes difficulty. The treatment involves general principles.

Elongation of the Uvula may result from chronic inflammation, or a relaxed condition of the fauces due to repeated colds. The palate or curtain drops, and gives rise to a troublesome tickling cough, with an occasional inclination to vomit; usually worse when he lies down. Astringent washes, as cold infusions of golden seal, gold thread, alum in sage tea, cold, brushing over with perchloride of iron. If all means fail, snip off about two-thirds of its length.

DYSPHAGIA.

Difficulty of deglutition. Difficulty of swallowing is a symptom of great prominence in disease of the pharynx and œsophagus, as inflammation, ulceration, stricture, spasmodic contractions, polypus, cancer. It may arise from glossitis, acute or chronic tonsillitis, croup, diphtheria, inflammation and abscess, paralysis of muscles of deglutition in various diseases, malignant and tubercular, or syphilitic ulceration about epiglottis, fauces. Presence of tumors, spasm of pharynx and œsophagus, as in hydrophobia; inflammation, ulceration, or œdema of larynx.

RETRO-PHARYNGEAL ABSCESS.

An abscess the result of acute or chronic inflammation of the loose areolar tissue, between the posterior wall of pharynx and muscles on anterior part of the spine; often associated with or dependent on the tubercular diathesis or syphilitic taint.

Symptoms.—Rigors, fever, soreness of throat, restlessness, nausea, with derangement of brain, lungs, and heart; difficulty in breathing and swallowing; a fixed and retracted state of head; rigidity of muscles at back and neck; more or less locked state of jaws; painful, difficult, and drawling articulation. As painful deglutition increases, solids are refused; liquids regurgitate through nose; spasmodic efforts at swallowing on depressing the tongue and examining fauces; a firm and projecting tumor is felt just behind the base of the tongue. Death often results from convulsions, coma, from tumor pressing pharynx forwards on epiglottis and rimaglottis, causing suffocation; from abscess suddenly bursting, pus finding its way into the trachea.

Treatment.—General treatment for tuberculæ or syphilis; bland, nourishing food and drink; as soon as pus can be detected in any quantity, puncture pressing head forward, so as to facilitate escape of pus by mouth.

ŒSOPHAGITIS.

Inflammation of the œsophagus is very rare. It may, however, occur as the result of erysipelas in a tubercular or syphilitic patient. If the germs of variola or scarlatina do not find their way to the skin, they may appear here. The use of alcohol, irritating drugs, acrid poisons may also cause it.

Symptoms.—Difficulty of swallowing, fever, burning soreness along the tract of the œsophagus, shooting pains from throat to between shoulders, fits of coughing, hiccough, constipation, etc. Ulceration, gangrene may be the result.

Remedies are to consist of mucilaginous drinks, as flaxseed tea, gum-arabic-water, milk or cream; suppositories of opium every two hours; tincture of green root of gelseminum and

morphia in small but often-repeated doses; fly blister front and back for six hours; strips of three inches wide and twelve inches long, followed with hot poultices and opium. If no improvement, try hypodermic injections, one-third of a grain of pilocarpin; otherwise, treat upon general principles.

Simple ulceration of the œsophagus is attended with great difficulty in swallowing; sometimes so great that deglutition is impossible. There is usually pain at stomach, or top of sternum, or between shoulders; nausea, anxiety, and debility; ulceration often extensive.

An effort to support strength by nutritious enema, juice of raw meat, raw eggs, milk; perfect quiet, even talking forbidden. The two blisters applied as above, smeared with croton oil, followed by hot poultices, changed frequently, so as to leave free suppurating sores; then glycerine and chlorate of potassa should be tried, quinine and opium, and gradually alteratives, with iodide of potassa.

ŒSOPHAGISM.

A purely nervous disorder, consisting in some weakness of the cervical sympathetic; common in women; causes are obscure.

Symptoms.—Individual imagines she has swallowed something—a pin, fish-bone, her artificial teeth, or some hard substance, and it is sticking in the œsophagus. Irritation increases as the delusion is nourished. There is difficulty in swallowing, owing to constriction of the superior, middle, or inferior constrictor muscles by the fancied irritation acting on their nerves. Symptoms are so genuine as to deceive medical experts.

Treatment.—It is well to make a careful investigation or search by fingers, bougie, laryngoscope, which fails to detect any substance; or perhaps her teeth may be found under a pillow, when symptoms instantly disappear. The treatment should be a general course of nerve tonics, as quinine, bromide, sumbul, etc. If case is stubborn, try the same treatment as for hysteria or anæmia of spinal cord.

STRICTURE OF THE ŒSOPHAGUS.

Stricture of the œsophagus may be met with either in a spasmodic or organic form. In the former it comes and goes; in the latter there is effusion of lymph and permanent obstruction. The œsophagus being made up of circular muscular rings, like the urethra and bronchi, and each being supplied with sentient nerves, renders it very susceptible of the slightest irritation, which gives rise to contraction, and these being repeated, give rise to thickening.

Spasmodic Stricture.—That which is not permanent, but

comes and goes; may come on in two ways. There may be some weakness or irritation of the cervical nerves that supply the œsophagus, when in suddenly swallowing a cold fluid, which acts as a depressent to the points of the nerves in the muscular rings, a sudden contraction takes place. It comes on generally in swallowing a fluid, for fluids are more difficult to swallow than solids. In the act of swallowing a liquid, all the rings of the œsophagus are brought into active requisition; whereas, in swallowing a solid well-masticated it will slip down without a movement. In the other case there may be no central nervous weakness, but may be brought on suddenly by gulping down large draughts of ice-water, cold beer, and other cold drinks in hot weather. The coldness and haste produce the shock, followed by contraction, which when once induced is likely to be repeated, if the same cause is brought to bear. It is very common in beer-drinkers and young ladies swallowing large quantities of ices, iced drinks, ice cream.

Symptoms.—Difficulty in swallowing; at first confined to fluids, usually cold; then it extends to warm drinks and solid food; but the difficulty is not always; it comes on by spells—often a sense of fullness and choking under the influence of excitement. It cannot be confounded with permanent stricture, because the difficulty of swallowing is only now and again, and a bougie will pass down without a particle of obstruction.

Treatment.—In the treatment of spasmodic stricture, the greatest care should be exercised in eating and drinking; food to be bland and nutritious, well-masticated, and swallowed slowly; iced drinks, as iced lemonade, ice cream, and cold food or drink forbidden. All liquids should be taken slowly. Otherwise, shower baths, nourishing diet, flannel clothing, such drugs as quinine, iron, sumbul, lobelia, general tonics, and alteratives. If not attended to, it may lead to the organic form.

Organic Stricture is a condition in which lymph is effused in or on the circular muscular fibres of the œsophagus; thickening produced; it may involve the entire ring clear round, or only a part, and forms a permanent obstruction to the descent of solids, and often liquids. The effusion may be mere lymph, or even cartilage.

The cause is some irritation, as spasmodic stricture or the swallowing of some irritant, which gives rise to the effusion of lymph.

Symptoms.—Vomiting after taking food which descends to a point, and apparently sticks, and is thus rejected; or if the diet is very bland or soft, or the drink mucilaginous, it may pass through the obstruction. If case is seen here, and proper treatment inculcated, a cure may be effected. But if neglected, after the end of six or eight months the inability to swallow

becomes greater, until little can be swallowed. Then emaciation, debility takes place, and increases rapidly. The stricture can be felt, its size and shape well made out by bougie. If not cured, starvation takes place in spite of nutrient enemata.

Treatment.—The seat or location of the stricture can readily be made out by the feeling of obstruction and bougie. When that is ascertained, paint over a space of four inches square over it; paint with cantharidis collodion to remove cuticle; then paint with croton oil, and over all the irritating plaster, spread fresh daily and applied; encourage free suppuration over site. Then iodide of potassa in doses ranging from five to fifteen grains, with same quantity of carbonate of ammonia in some vegetable alterative. Three times a week bougies, well warmed and oiled, should be introduced. Begin with a small one that passes easily, and gradually increase their size, larger and larger, till case is cured. The diet should be of the most nutritious kind—juice of meat, raw eggs, cream. This course of treatment must be carried on for at least a year after the patient is well.

Cancer of the Œsophagus.—Very apt to follow stricture. The cancer germs may be deposited the entire length of the gullet, but more generally on the affected rings in stricture. It may assume the medullary, scirrhus, or epithelial form.

It is easily recognized by the cachexia, by the pain, anterior and posterior, by the burning soreness in the canal, cough, hic-cough, cutting pain in throat, ears, usually nausea. All the symptoms of permanent stricture, as difficulty of swallowing, perfect obstruction to the descent of food; generally a pouch forms above obstruction, in which food lodges; wasting, debility, prostration.

Treatment of no avail; relieve pain by hypodermic injections of morphia, and, if possible, introduce a tube through or over the cancerous mass every four hours, and inject juice of raw meat, port wine, and raw eggs.

HÆMORRHAGE FROM THE STOMACH.

Vomiting of blood from the stomach may be due to a large variety of causes. It may be a symptom of acute inflammation, of yellow fever, of abdominal disease, of ulcer in the stomach, of cancer, of diseased liver, scurvy or purpura, or vicarious menstruation. The vomited blood may be a pure red, mixed with the secretion of the stomach, or it may be dark, frothy, or most frequently it is like coffee grounds, or black, so changed by the acids of the stomach.

Treatment.—No food; recumbent posture; try small doses of common salt; heat over stomach; tincture of green root gelseminum is our best drug, and repeat; or, try gallic acid;

for thirst, small pieces of ice, or wash out mouth with plain water; those failing, aromatic sulphuric acid and quinine. Nourish carefully with beef juice, raw eggs, and enemata of beef tea.

ACUTE INFLAMMATION OF THE STOMACH.

Gastritis or acute inflammation of the stomach is a very fatal affection, as the stomach is a very vital organ.

Causes.—The ordinary causes are the introduction of irritating agents into the stomach, such as poisons, arsenic, caustics, mercury, acids, emetics, whisky, and other irritants; or it may be caused by blood poisons or disease-germs, as in yellow and puerperal fevers; or by inflammation spreading from other parts, as in inflammation of the uterus and peritoneal coat: it often spreads to or involves the stomach.

Symptoms.—Nausea and vomiting; burning soreness or rawness in the stomach, accompanied with a pricking or lancinating pain, very tender to slightest touch, or even pressure of bed-clothes; intense thirst; great desire for cold drinks, which when swallowed, are almost immediately rejected; tongue at first may be furred or coated white, with red tip and edges, or in streaks, and subsequently it assumes a raw-beef appearance, smooth and glassy; and if the blood is affected, dark at the root. The matter vomited at first, is usually serous, or mucous, or biliary, then becomes greenish, latterly like coffee grounds, or black, which is simply blood changed by the action of the acids of the stomach. There is a generally tympanitic condition of the abdomen, and patient lies on back with knees drawn up and head and shoulders elevated, so as to keep the abdominal muscles from pressing the stomach. Temperature is very high; pulse frequent, small and wiry; respiration frequent and short; features pinched and sharp-pointed; constipation; loathing of food and disgust of warm drinks; urine scanty, high-colored; its duration, about a week. If not very carefully and energetically managed, death is very liable to take place from exhaustion, or suddenly from gangrene. The best we can obtain is to run it into chronic gastritis.

Treatment.—The patient must be kept as quiet as possible in recumbent posture in bed; weight of bed-clothes kept off by a cradle; heat to feet; sponging body thrice daily; mustard-plaster poultices over stomach, followed by hot poultices of glycerine, flaxseed, and opium; no drink allowed; patient can take water or ice in mouth, but must not swallow much, if any; nothing to enable the stomach to contract. Small, but oft-repeated doses of tincture of green root gelsemium, in alternation with a solution of morphia. The two remedies administered on and on every half hour till narcotism is induced, which

condition should be continued for ten or twelve hours, and patient kept on right side. If successful with narcotism, then continue same two remedies every three or four hours for a few days; give no food, a little mucilaginous drink, as gum-arabic water or marshmallow tea; nutritive enemata every three hours. The point to be aimed at is narcotism, during which inflammatory action ceases.

If a complication of other diseases, still this point holds good. The idiosyncrasy that often exists to the action of opium or morphia, is entirely overcome by the gelseminum. If successful, be very cautious about beginning diet: milk and pepsin, beef tea and pepsin, white of egg and pepsin, juice of raw beef.

CHRONIC INFLAMMATION OF THE STOMACH.

A low grade of irritation in the various coats of the stomach.

It may follow an acute attack, or may come on from the introduction of irritants into the stomach, as arsenic, mercury, whisky, etc.; swallowing immoderately iced drinks; bolting ice-cream after a hearty meal, thereby suspending digestion and devitalizing the stomach. In ladies, belts, or other articles of dress irritating stomach; in men, from dispensing with suspenders, wearing belts; and mechanical occupations, pressing on stomach; also, direct violence, and other like causes.

Symptoms.—The symptoms of chronic inflammation of the stomach involve all that are present in the various forms of dyspepsia, as heartburn, water-brash, eructations of gas or liquids, gastrodynia, slow or imperfect digestion, with headache; besides, the tongue is red at tip and edges, with a white coat in the centre; there is pain in the stomach, aggravated by pressure or the clothes; disordered bowels; often a craving for food, but only as small portion can be taken without producing oppression and vomiting.

Chronic gastritis is essentially stubborn. It may exist many years, even in a mild or aggravated form, but is very apt to terminate in thickening or induration of its coats, narrowing of the pylorus, or ulceration, perhaps going on to perforation.

Treatment.—In this affection, rest, daily bathing, bowels opened by enema of some soup; flannel clothing. A suppurating sore, about four square inches, should be maintained over region of stomach, until a few months after recovery. The diet should consist of the juice of raw beef, milk, with lime-water or bicarbonate of potassa, arrow root, milk toast, boiled fish, chicken, oatmeal mush; three meals per day, pepsin to follow each in a suitable dose to digest without making any demand on stomach for digestion; drinking fluids to be forbidden.

After attending to those preliminary points, our next and main object is to increase the vitalizing tonicity of the stomach.

For this purpose, compound tincture of cinchona, four ounces; aromatic sulphuric acid, one ounce; one teaspoonful every four hours in water, or if that does not operate well, use infusion of golden seal, from a tablespoonful to three every four hours; collinsonia, gentian, columbo, or other remedies laid down under the head of *Dyspepsia*. If there is much burning, soreness, or rawness, use gelseminum and quinine freely, or gelseminum and chlorate of potassa. Once rid of pain, with tenderness on pressure, and the red tip and edged tongue, then a general course of vegetable alteratives and tonics, with more extended and varied diet.

Effusion of Lymph—Which produces thickening or induration of the walls of the stomach, has a tendency to interfere with the normal vermicular motions of the stomach. It is generally effused in the sub-mucous and muscular coats, and in some cases is quite thick.

Induration of the Pylorus—Is usually due to the same cause, only that the lymph is more thoroughly organized into fibrous tissue, which forms a dense deposit about the pyloric portion of stomach. As a result, there is stricture, with dilatation of stomach and hypertrophy of its muscular coat.

Symptoms—Of thickening by lymph and induration of any part, but more especially at the pylorus, are quite numerous; generally the induration can be felt through the abdominal walls. There are present all the symptoms of indigestion, with considerable pain, ranging over a long period. There is also great emaciation and progressive debility, water-brash, nausea, and constipation; mental depression; appetite often ravenous, but food creates great distress and vomiting; vomited matters are loaded with sarcinæ or torulæ; food is rejected only partially digested; disturbed sleep; prostration; death from inanition. By a strict attention to diet and remedies, many cases make a good recovery.

Treatment.—Pretty near the same as for *Chronic Gastritis*. Irritating plaster over stomach; diet to be followed by pepsin, bowels opened with enemata; warm clothing, and general alteratives and tonics.

Dilatation of the Stomach.—Generally due to induration of the pylorus and thickening, which causes contraction, so that the food cannot pass into duodenum. It is usually progressive; goes on slowly and steadily until stomach becomes enormously distended. Cases occur in beer-drinkers without any cause but the inordinate use of large quantities of fluid.

Symptoms.—A voracious appetite, with all the symptoms of indigestion, as heartburn, water-brash, flatulence, constipation, vomiting. In the ejected matter can be found immense quantities of the sarcinæ ventriculi and yeast plant. Those

organisms probably result from the degraded living matter of the mucous membrane, and the yeast fungus from fermentation, from food being long delayed in the stomach.

Treatment.—This must be upon general principles—an abundance of food, light and easily digested; the micro-organism to be destroyed by chloride of lime, same as in gastric catarrh, and the case treated as one of general dyspepsia by vegetable alteratives and tonics.

Gastric Ulcer.—The final termination of chronic inflammation of the stomach into effusion of lymph, is the breaking down of that lymph into pus, and the formation of a gastric ulcer. Rigors, with the history of the case, is often all we have to guide us. The pus, as a general rule, evacuates itself into the stomach, and finds its way into the bowels, leaving in the stomach an ulcer that is round, looks as if scooped or punched out of mucous membrane, and mostly found at or near the pyloric opening. May prove fatal by hæmorrhage, perforation, or exhaustion.

Symptoms very variable; pain in the stomach and over lower dorsal vertebræ; increased by food; the tenderness in or over the region of the stomach circumscribed to a small spot or area, and is increased by any warm drink or saccharine matter; violent aortic pulsation; all the symptoms of indigestion; eructations of sour fluids, nausea, and vomiting; great prostration and loss of flesh. In favorable cases ulcer heals, and there is complete recovery; amenorrhœa in women. If ulcer eats into a large vessel, there is often hæmatemesis. If a large meal is taken, or emetics given, there may be perforation, with profound prostration, collapse, and death.

Treatment.—Pain must be relieved with morphia in an infusion of bayberry; poultices locally, and the greatest care as to diet, only small quantities of liquid food given; all indigestible substances should be carefully avoided. At first milk and lime-water; subsequently boiled fish, poultry, and lightest kind of diet. Special remedies to act on ulcer—bayberry, golden seal, mineral acids, and sulphate of quinine.

A cautious use of vegetable alteratives and tonics, keeping bowels open with enemata, and all straining efforts must be avoided. Other symptoms treated on general principles.

In rare cases, gastric ulcer terminates in an adhesion of the peritoneal coat of the stomach to the peritoneal coat of the abdomen, the ulcer eroding or eating its way through the abdominal walls, and forms a fistula, with an opening externally. In another class of cases, the irritation wears out or exhausts the vital force so much that the cancer-germ is developed, and we have

Cancer of the Stomach, occurring most frequently in the

position where lymph was effused at the pyloric opening of the stomach, or else in the space or curvature between the cardiac and pyloric openings. It is usually of the medullary, scirrhus, or colloid variety.

The long-continued irritation of chronic inflammation, effusion of lymph, thickening, breaking down of lymph into pus not only create the cancerous cachexia, but the local partial death in the stomach permits of a deposit of the germs.

Symptoms.—In addition to all those of dyspepsia, there is the cancerous cachexia, pain in the stomach of a burning, lancinating, or gnawing character, radiating from front to back, increased by food and pressure; retraction of abdominal walls, eructations of foetid gas, resembling carburetted hydrogen gas; nausea, vomiting of glairy mucus, or of a bloody sanious fluid, or dark grumous matter resembling coffee grounds, but loaded with cancer-germs. If the cancerous deposit is at the cardiac opening, a pouch is likely to form at the lower end of the œsophagus, in which the food accumulates, returning undigested, together with mucus. If the cancerous deposit is near the pylorus, food is retained longer and more changed; constipation, debility, emaciation, restlessness, anxiety. If cancerous mass lies over descending aorta, it may have a pulsating feel. If it is any size, and is medullary or scirrhus, it can readily be felt by the hand.

Before terminating in death it may terminate in perforation, and contents of stomach escape into peritoneal cavity, or there may be adhesion between stomach and abdominal walls, and fistulous openings form externally, or adhesions may take place between stomach and duodenum, diaphragm, lungs, pericardium. The duration of cancer of the stomach is from one to two years.

Treatment.—General treatment for cancer; open two large sores between shoulders; encourage free suppuration with croton oil and poultices; give opium and conium freely to alleviate pain; apply belladonna plaster over stomach; use ozonized glycerine or water internally. As soon as free suppuration is established between shoulders remove belladonna from stomach, and bind over it ozonized clay half an inch thick; don't cause redness; moisten or change every two or three days. Don't spare antiseptics, lime-water and milk, yeast and milk, chlorate or permanganate of potassa occasionally. If clay irritates locally, apply solution of sulphate of manganese; when irritation ceases, re-apply the clay; the cancer alternative pushed carefully as can be borne. Apparently hopeless, but many cases recover under the antiseptic treatment. In all cases there must be absolute freedom from pain while pursuing the above course.

DYSPEPSIA, OR INDIGESTION.

Anything that interferes with the healthy action of the stomach, brain, or bowels, may give rise to indigestion. Food is digested in the stomach during the day, when the patient is awake, and during the night, when asleep, in the bowels; so that indigestion must be divided into two forms—gastric and intestinal. The indigestion, or failure on the part of the stomach to digest, takes place immediately after a meal, and continues for two, four, or more hours according to the gravity of the disease, or kind or quality of food introduced; whereas, in intestinal or bowel dyspepsia, the uneasiness or symptoms of indigestion do not commence for several hours after eating. In the stomach, the food after being slowly and perfectly masticated, and incorporated with the secretion of the parotid and other glands of the mouth, is subjected to the action of the gastric juice, a powerful solvent, being made up of a substance called pepsin. In the bowels, the digested food or chyme, is subjected to the action of the pancreatic secretion, (a gland almost immaculate, enjoying a freedom from disease most remarkable,) which emulsifies the fat, starch, and other products, rendering them fit to become proper constituents of nutrition. The process of healthy digestion is easy, speedy, and complete; there can be no excess of it, for food cannot be too quickly and completely converted into blood; whereas, indigestion is slow, painful, and imperfect.

Painful, from a slight uneasiness, to pain, or actual torture; *slow*, when the stomach fails to digest in the ordinary time, and chemical decomposition or change takes place; *defective*, when the food is either altered, or fermented, or decomposed, or formed into vegetable germs, like the yeast plant.

Indigestion is divided into numerous forms or varieties, according as one or more symptoms predominate.

It is called *Simple*, when there is loss of appetite, pain, weight, fulness or oppression about the stomach after meals; flatulence, nausea, vomiting, constipation or diarrhœa, coated tongue and fetid breath, with headache, palpitation, heartburn, water-brash, hypochondriasis.

It is called *Slow Digestion*, when there is a deficient secretion of gastric juice; a feeling of fullness and distension at the pit of stomach, with the other symptoms.

It is called *Painful*, when gastralgia and heartburn are the prevailing indications.

Wind Dyspepsia, when flatulence, eructations of gas, and acid water, as water-brash or pyrosis; there is usually gastrodynia, or stomach-ache.

It is termed *Boulimic Dyspepsia*, when, with the ordinary

symptoms, there is an excessive hunger or craving for food, and even not appeased by large quantities of food.

Nervous dyspepsia, when there is a nervous temperament, white face, sharp features, emaciation, phosphates and chlorides in urine; all or most of the symptoms are present, but especially headache, like a band or scalp flying off, and hypochondriasis a decided and prominent symptom, etc.

Causes.—The causes are not only numerous but varied, and embrace every derangement and lack of tone in any organ, or of the entire body. Hurried eating, with imperfect mastication from whatever cause; improper food; drinking of fluids at meals, or the use of iced or cold drinks or food, highly depressing to stomach which arrest digestion; want of exercise; mental anxiety; strain on mental powers by study or struggle for existence; general debility, or nervous exhaustion; use of whisky, beer, tobacco, and drugs; excessive drinking, especially cold drinks; diseases of the blood; and often due to reflex causes, as diseases of the liver, spleen, lungs, heart, kidneys, and to diseases of the nervous system generally. There is, so to speak, an endless chain of sympathetic and other causes.

Symptoms—Are very variable in their nature and severity. Loss of appetite, pain, weight, fullness at or about the stomach after eating; acidity, flatulence, eructations, nausea, vomiting, pyrosis, tightness, heartburn, oppression, wearing cramp, languor, debility, giddiness, with headache, frontal, or like a band round head,—a sensation as if there was a movement of the ground; constipation most common; still, there might be diarrhoea; tongue coated white or brown, or if intestinal, buff coat, with transverse fissures; fœtid breath; palpitation; pains in loins or limbs; often cough; liver very torpid; eyes tinged with bile; urine scanty, high-colored, and deposits phosphates and chlorides; skin dry, contracted; the brain is often seriously affected, both through reflex action, want of nutrition, and otherwise; so that hypochondriasis is always present in either a mild or aggravated form.

A look at the physiology of the stomach will satisfy anyone of the existence of an immense nervous connection—the very secretion of the gastric juice being a nervous act—for there is no gastric juice in a healthy stomach until the stimulus of food is impressed upon the gastric nerves, which is carried to the brain, and if that organ is healthy, gastric juice will be thrown out. The ultimate relation of the stomach with the great sympathetic, and the intimate union that exists between the stomach and other organs, cause non-sentient nerves to become highly sensitive. The abdominal plexuses of sympathetic nerves always play an important part in the production of indigestion.

Treatment.—In all its forms, there should be an avoidance of all care worry, and anxiety, study, or any mental strain. A vigorous brain is of essential importance, and an easy sympathetic soul of great moment. Every drain upon the nervous system must be blocked off; no over-work, nor care, nor sexual excesses. Pure blood is also important; and active, but not fatiguing exercise in the open air; daily bathing; if the cold douche or shower-bath can be borne, it is best, to be followed by friction and flannel clothing; a diet highly nutritious but light, should be laid down, consisting of broiled tenderloin steak or chicken, soft-boiled eggs, boiled fish, toast buttered, oatmeal mush, roasted potatoes, ripe fruit, mocha coffee.

Veal, pork, salt or corned meats or fish, fried or boiled meat, all slop, as soups, pastry, pies, nuts, sweets, cabbage, tea, tobacco, alcohol, or all fermented liquors except Bass' old ale, which is superior to extract of malt, should be rigidly forbidden.

Another important point is slow eating, thorough mastication; no fluids, warm diet, perfect regularity in eating, sleeping, and in a daily movement of the bowels, and in perfect rest to stomach between meals; no nibbling, or odd snaps, or lunches. Not more than three meals per day, with proper intervals between. Bowels to be opened with enemata daily every morning after breakfast.

Special symptoms must be relieved or palliated, in order to give relief, until a cure is effected.

The most valuable remedy in dyspepsia is a healthy condition of the mouth and teeth, and thorough mastication of the food. We all eat too hurriedly. There is too little mastication, not a proper admixture of the salivary secretion; so that there is crammed into most stomachs a mass of inadequately crushed or undivided solid matter, which acts as a mechanical irritant, sets up disease. Eating quickly, filling the stomach with indigestible material, unprepared food, renders it incapable of recovering its tone. All animals intended to feed hurriedly have the powers of rumination, or are provided with gizzards. Man is not so furnished, and it is fair to assume he was made to eat slowly. Hurried meals are highly mischievous. Then there should be rest, for a considerable time after meals, of mind and body; but, on no consideration, sleep. To sleep after meals is the worst aggravation a weak stomach can receive. During sleep, digestion in the stomach is, to a certain extent, suspended.

For the Relief of Eructations and Vomiting.—One of our best remedies to effectually relieve this condition is pepsin. It should be administered with or at the meal. Its use causes little demand to be made upon the stomach for its digestive secretion, and artificial digestion, promptly carried out, precludes the possibility of either eructation or vomiting. There is no

drug to equal it, as it gives vitality to a weak organ by giving rest. The digestive powers are assisted, and the food which, in other cases, ferments and irritates, because undigested, readily becomes assimilated, because it is now digested. Some think it best to give the pepsin a little while before meals, so as to afford it some time to combine with the existing condition of the stomach, and produce a more natural effect upon the food when swallowed, after being acted on by the salivary secretion.

The idea is to give the stomach rest, and promote the formation of peptone; and as soon as normal vigor is acquired, the organ will soon respond to the production of its natural fluids. It is undoubtedly a valuable agent, and no one can fail to prepare it from the formula we have laid down.

The use of alkalies in the treatment of dyspepsia, should, as far as possible, be discouraged, as they tend to weaken the mucous coat of the stomach, and give rise to catarrh. Perhaps the most innocent alkali would be one teaspoonful of lime-water to half a tumblerful of milk, or five grains of bicarbonate of potassa to the same quantity of milk, once, twice, or even thrice daily.

For the Relief of Gastrodynia or Stomach Cramp.—As a rule this form of pain comes on following a meal. It is of the same character as neuralgia; it is the gastric nerves crying for more nutrition—something to vitalize them.

The various preparations of bismuth will relieve this pain, but their efficacy in other respects is not good. We witness their baneful effects in ladies who use it as a face powder or in cosmetics, and to introduce this deadening, benumbing drug directly into the stomach is reprehensible if any other remedy can be procured.

Capsicum or white mustard seeds, especially the former, is an excellent remedy, a good stimulant, does not irritate like black pepper, and its use affords almost instant relief. A good form is the compound tincture of myrrh, from half to one teaspoonful after meals in warm coffee. Half or drop doses of dilute hydrocyanic acid act well, and being an ingredient of normal gastric juice, it could be added to the pepsin. A solution of quinine in aromatic sulphuric acid is also of utility; mineral acids, carbolic acid and tincture iodine; warm plasters, as hemlock or belladonna plaster, over stomach.

For the Relief of Pyrosis or Water-Brash.—To mention acidity is equivalent to rushing for an alkali, but a bitter will answer better. Still, patients will persist in their use on account of the immediate relief they afford.

Glycerine added to milk; one tablespoonful to half tumblerful, and taken after meals, relieves flatulence, acidity, pyrosis, or

water-brash. Usually it is speedily and completely successful, as it prevents fermentation and putrefaction. Although glycerine prevents putrefaction of nitrogenous substances, it does not prevent the digestive action of pepsin and hydrochloric acid; hence, while it prevents the formation of acids, checks fermentation, it in no way hinders digestion.

For the Relief of Gastralgia or Heartburn.—Reject alkalies and try nitric acid in compound tincture of cinchona, or dilute nitro-muriatic acid. If these fail, use hydrocyanic acid dilute. If that does not afford relief, steep gentian and horse-radish in good whisky enough to cover, and use in tablespoonful doses; or nux vomica in fluid extract of columbo or cascarrilla.

In the event of such remedies not affording relief, then lime-water and milk, or bicarbonate of potassa in milk. Take it all in all, it is doubtful if we have a better and more diversified remedy in indigestion than the white mustard seed for all the symptoms, for heartburn, cramp, wind. The white mustard seed should be taken whole in gruel or water, or mucilage, in doses of from one to two teaspoonfuls one hour before meals. When it passes into the stomach, it yields a peculiar principle through its rind, for it is not digested, but passed whole by the bowels. This substance strengthens and invigorates the stomach, the liver, and the entire alimentary tract. Their use can be persevered with for many months. The longer they are used the better digestion becomes, always improving. A good rule for the dose is the state of the bowels—just enough before each meal to give one or two evacuations per day. They are invigorating, and give an extraordinary amount of tonic.

The general treatment of dyspepsia, like all other chronic diseases, is to be based upon a general vegetable alterative and tonic course, administering tonics in solution half or one hour before meals, and the alteratives two hours after, or some little time after food is supposed to be digested; remedies to be changed weekly.

Alteratives should be selected from among those that have a vitalizing action on the stomach, as phytolacca, blue flag, stillingia, tag-alder; tonics, as cinchona, hydrastis, collinsonia, gentian, nux vomica, frazerine, salicin, columbo, and mineral acids.

GASTRIC CATARRH.

A weak or relaxed condition of the mucous membrane of the stomach, which gives rise to an excessive secretion of mucus. When mucus is in excess on the stomach, the formation of the *sarcinæ ventriculi* takes place, and with it is to be found the yeast plant in less or more abundance. Now, whether this *sarcinæ* is the result of degraded living matter of the mucous membrane,

or whether it is a true vegetable germ or fungus, produced like the yeast plant by fermentation and atmospheric air, is not definitely settled. It grows like all other living matter, and with remarkable activity, so much so that the stomach becomes remarkably distended with its presence. The fungoid mass or jelly, tenacious in its consistency, placed under the microscope looks as if it was made up of blocks or square packages, living, growing, and imbibing nourishment from the mucus which surround it, and new additions by change of degradation.

Causes.—Probably two-thirds of all cases of dyspepsia are of the catarrhal form, and the common causes are hurried or imperfect mastication. Tobacco is very productive of this form; hot and cold drinks; use of saccharine and starchy substances; late suppers; drugs, especially alkalies, such as bromide of potassa, alcohol, beer.

Our semi-tropical climate, sudden changes from heat to cold may predispose to it. Irritation of adjacent organs, as morbid states of the liver, chronic bronchitis, phthisis, and pulmonary emphysema. In other words, any thing that will cause congestion of the capillary vessels of the mucous coat and excessive secretion of mucus.

Symptoms.—In this form of dyspepsia there may be soreness, even rawness; a feeling of faintness; of emptiness; a craving for food, an inability to eat, which vomiting relieves, flatulence, acid eructations, heartburn, pyrosis, weakness, coldness in extremities; tongue has a white fur, may be coated, breath very sour smelling, disturbance of the head, heart, liver, and other organs. If the sarcinæ become large before breaking down or being vomited, great distension of the stomach.

Eructations of wind, and belching up of acid fluids, the result of fermentation, in which the germs of the sarcinæ are found in great abundance, together with the yeast plant and moulds. The sarcinæ ventriculi can always be detected in catarrh, even in the mouth, but an emetic will bring up the thick, glairy, ropy mass, which can be seen living and growing. Its congenial abode is the stomach, where it often attains great size, breaks down, dies, is vomited or thrown off by the bowels in a sudden, unexpected attack of diarrhœa. It has been found in the uterus, in intro-uterine catarrh, and other hollow organs. If there is any doubt in the diagnosis, the microscope will decide the matter at once.

Treatment.—The general principles of treatment for dyspepsia must be carried out; in addition, an effort must be made to restore the mucous membrane to a healthy condition, and thus cut off nutrition and addition to the sarcinæ, and employ means to destroy the germ. The latter proceeding is of great importance.

Remedies to Destroy the Germ.—The first and best remedy to destroy is ozone-water; which, if taken on an empty stomach thrice daily, will soon penetrate the gelatinous mass. It is superior to all remedies, because it does not impair the gastric juice, nor weaken the stomach, but rather tones and strengthens.

Probably our next best remedy is a solution of chloride of lime—small doses and well guarded in milk. Sulphite of lime is also of utility.

The objections to those valuable antiseptics, sulphite of soda, chlorate and permanganate of potassa, are that in order to be of utility they must be administered in very large doses, so that they impair the pepsin and what remnant of digestive power may remain.

Another plan that is sometimes very effectually carried out is:

To Starve the Germ out.—To give emetics of lobelia twice a week and daily, to give scarcely any other drink but a strong infusion of bayberry, with small amount of capsicum, to cause it to be slightly stimulating. The bayberry arrests the secretion of mucus by bracing up the mucous coat. Thus between the action of the emetic, and the very active vitalizing agency of the bayberry, the sarcinae can be removed in six weeks.

The strictest attention to diet and drinks should be observed for some time; the vital powers invigorated by every means possible.

CATARRH OF THE STOMACH IN CHILDREN.

Until within these few years back, the sarcinae ventriculi was not met with in childhood; now it is one of the commonest derangements of that period of life, among rich and poor. It is a constant danger to hand-fed babies, and forms one of our chief obstacles to the raising of infants. In older children it is of frequent occurrence. It seriously affects their nutrition, and interferes with development and growth. Mothers term it biliousness. The little one loses its appetite, mopes, lies about, has a dull, pasty or yellow complexion, and looks dark under the eyes. At night it sleeps badly, and is restless and irritable during the day. If the tongue is protruded, there is a fur on it, with a coat in centre; the breath is sour-smelling; there is a fullness about the stomach; all indicating catarrh of the stomach, which, with its fungus, interferes with the digestion of the food. It may be vomited, or pass by the bowels, but it leaves the stomach weak, and another is likely to follow, and nutrition is seriously impaired. In addition to the above symptoms, affected children complain of pains in abdomen and sides, and are likely to suffer from vertigo, syncope from pressure upward of the distended stomach against the diaphragm and heart. Bowels usually are constipated.

These symptoms are greatly aggravated by an injudicious diet on the part of the mother, as supplying the child with an excess of fermentable food, as potatoes, puddings, sweet cakes, etc., which feed the *sarcinæ* and keep up the dyspepsia, which is a source of great discomfort to the child and anxiety to the parent. The whole system is being fed by an acid, generated by the germ, and aggravated by the food, and the child is irritable and excessively restless. His speech is hesitating; he may stammer; his muscles may twitch; his eyes wink, and he is nervous.

Nausea and vomiting are not always present. If there is vomiting, the products are sour-smelling fluid, and thick, ropy mucus. Frontal headache is rarely absent; it is often distressing; urine highly acid, loaded with uric acid. Nutrition is always interfered with; the child wastes perceptibly, or there are fainting fits.

In curing gastric catarrh in children, the *sarcinæ* must be either removed, destroyed, or starved out. The acrid mucus and germ is the constant cause of acidity and fermentation; they keep up a bad train of symptoms. The greatest benefit, therefore, is to be derived from the action of an emetic dose of ipecacuanha wine, and afterward bayberry in the form of a compound elixir. Open bowels with compound liquorice powder. If there is fever, aconite. Then follow in with ozone-water to destroy the germ. Diet carefully guarded; no starchy or saccharine agent given; nothing to aid fermentation; toast, milk, and lime-water. As soon as tongue cleans, appetite returns; boiled fish, white of chicken, lean broiled mutton. It is not well to press the child to eat; rather refrain. To give tone to the stomach and strengthen digestive powers, sulphate of cinchona or wine bitters.

In order to prevent gastric catarrh becoming a prevailing disease among children, mothers must learn that all sugar and starch articles of diet are poisonous to children. They should also be made aware of the great utility of a flannel binder or roller next the skin as an indispensable article of a child's dress till it reaches three years of age. This roller should reach from the armpit to the groin; not pinned too tightly. The resisting power of all children should be fortified by gradually bringing their morning and evening bath to cold water. It must be a very gradual process in weak children; in all cases followed by active rubbing. To bring children to the cold bath and practice it properly, has a most tonic effect upon the system generally, and confers great resisting power upon the part of the child, and reduces its susceptibility to any change. Mothers should also be instructed of the utility of brisk massage over body after child has been dried off.

DISEASES OF THE DUODENUM.

There has been an effort made to map out the diseases of the first twelve inches of the small intestine, chiefly on account of its anatomical character, its intimate relation to the pancreas and liver, the very fine texture of its nerves, and its remarkable action, or rather source of attraction for such poisons as bismuth, lead, etc.; but the diagnosis is always difficult, even obscure from other intestinal affections.

Inflammation of Duodenum.—Acute inflammation is seldom limited to the duodenum; generally associated with some disease of the stomach, as acute or chronic gastritis, or with the same condition in the small intestine; or with inflammation of the gall-bladder, or under surface of the liver.

Symptoms.—The localized pain over the region of the duodenum, aggravated by pressure, movement. The tenderness is quite great; the very fine, delicate character of the nerves renders it so. Thirst; appetite unaltered or impaired; nausea and vomiting; diarrhoea, with unnatural and offensive stools; very great weakness, mental anxiety, and loss of flesh. When complicated with inflammation of biliary apparatus or impacted gall-stones, there will be jaundice. If there be any pancreatic disease, there will be fat or oil globules in stools; tongue generally coated brown, with transverse fissures; two or three hours after taking food, the pain and distress greatest.

Treatment.—Irritating plaster over tenderness, compound licorice powder to open bowels; rest, mild diet, mucilaginous drinks of slippery elm, opium to relieve pain, alteratives and tonics. Special remedies for inflammation, or disease of liver and pancreas.

Duodenal or Intestinal Dyspepsia may result from the same causes as indigestion in stomach.

Symptoms.—All or some of the symptoms of indigestion of the stomach only coming on two or three hours after meals; tongue coated white and brown, with transverse fissures; nausea, attacks of faintness; very often more or less jaundice.

Treatment for *Dyspepsia*, remedies being chiefly those that act on liver, as phosphate of soda, nitro-muriatic acid, and compound tincture cinchona; sulphate quinine and aromatic sulphuric acid; ammonia acetate, phytolacca, leptandra.

Perforating Ulcer of Duodenum in its symptoms resembles gastric ulcer, added to which there may be more persistent nausea and vomiting, with diarrhoea and bloody stools; great prostration. In extensive burns, sloughing ulcers of duodenum are very common, owing to the internal congestion.

Cancer of the Duodenum is recognized by its cachexia, the location of pain, it being both in back and front; indiges-

tion, biliary symptoms, tongue coated brown, with transverse fissures.

General treatment for cancer; absolute relief of pain; apply ozonized clay early and persistently, it often silently works wonders.

ENTERITIS.

Inflammation of the small intestine varies much in severity. It may be very slight, or of a very high grade. It is usually impossible to localize it in any particular part of the bowel. Irritation, either internal or external, a common cause.

Symptoms begin with pain around the umbilicus, aggravated by pressure; nausea, vomiting, rigors, and a fever; great headache, features pinched, tongue buff-leather coated, heat high, pulse wiry: great restlessness, prostration, anxiety of countenance. If the mucous coat alone is involved, there will be a muco-enteritis, or acute intestinal catarrh, and diarrhœa, with mucous, bilious, or serous stools. When the peritoneal and muscular coat is involved, there is obstinate constipation. The patient assumes the position on back, with knees drawn up so as to relax the abdominal muscles: often delirium; vomiting becomes more persistent, and vomited matter highly offensive, sometimes stercocareous.

Treatment.—Perfect rest in bed; either a large fly blister for six hours, or turpentine, until a good degree of redness is induced, followed by hot flaxseed-meal poultices with opium, changed pretty frequently at first. Empty rectum with enemata of warm water and laudanum. Sponge surface thrice daily; heat to feet. Case bad, skin pungent, hot: jaborandi, opium pulverized with tincture of the green root of gelseminum, in doses often but small, from half to one grain of opium every hour, with from ten to twenty drops of the gelseminum. If jaborandi is administered, there must be no drink; if not given, then mucilaginous drinks, beef-tea, milk, and lime-water. The principal drugs are the opium and gelseminum, during the active as well as during the convalescing stage; any disposition to collapse, ammonia and quinine. During convalescence, apply a flannel roller over abdomen. Simple animal food, milk, raw eggs, and such remedies as an infusion of bayberry, aromatic sulphuric acid and quinine, golden seal.

Catarrhal Enteritis.—This is a very common affection, generally classed as a diarrhœa, although it is a true inflammation of the mucous coats of the intestines. As a rule, intestinal catarrh has a very limited area of distribution in most cases. It can usually be localized by the soreness, and if near the duodenum, by some jaundice; if near the rectum, by the tenesmus or bearing down, while the pain or soreness enables us to locate it in

some particular spot. The significance of the stool is of great value—mucus. Pure mucus indicates a disease of the sigmoid flexure; scybala or hardened lumps of feces in mucus, an affection of the colon. The stools may be large and covered with mucus, and no pain; or the stools may be soft, and incorporated with mucus of a pulpy, thick consistence, or full of mucus. If there be unaltered food in the stools, fat or starch, the pancreas is at fault.

Treatment.—Milk diet, with lime-water; rest; mustard over soreness; flannel roller over abdomen. Try first compound tincture cinchona and aromatic sulphuric acid, three times a day; drink freely of a tea of bayberry. If that is not successful in a few days, try the white mustard seeds; that failing, which is scarcely possible, try aromatic sulphuric acid, fifteen drops every three hours in water.

INFLAMMATION OF THE CÆCUM.

The cæcum or its appendix, situated in the right iliac fossa, and covered by peritoneum only anteriorly and latterly, may be seriously diseased, without any other part of the intestines being affected. Thus severe colic, and even fatal ileitis, may arise from the lodgment in this part of the canal of hard, fecal matter, skins or stones of fruit, orange seeds, gall-stones, fish bones, foreign bodies, balls of intestinal worms. Sometimes fecal matters accumulate to such an extent as to form a very large mass, and many cases of recovery might be cited, which took place upon the passage of a large quantity of feces, when the fecal enlargement had been pronounced a tumor by an ignorant practitioner. When any morbid matters get impacted in the vermiform appendix of the cæcum, they are very apt to give rise to inflammation, ending in abscess.

Symptoms.—In the acute form, there is fever, nausea, constipation; fulness and tenderness about right iliac region; pain rendered exquisite by pressure. Position on right side selected, with trunk somewhat bent, and knees drawn up to relax abdominal muscles so as not to press on painful tissues. If peritoneal coat becomes involved, may have general peritonitis; or areolar tissue around cæcum may become inflamed, and result in suppuration and abscess; when this takes place, it is called *perityphilitis*.

When inflammatory action begins in the *vermiform appendix* from constitutional causes, or escape into this part of morbid matter, symptoms are very acute, excruciating, griping; tympanites; hiccough; violent sickness; obstruction of the bowels; great pain, extending to right ovary or testicle, and shooting down the inside of the thigh. Gangrene and general peritonitis may follow, and cause death; or a portion of large intes-

tine and cæcum, with appendix, may slough off, be passed with stool, and recovery is possible. In tubercular typhilitis, ulceration is very apt to occur.

In chronic cæcitis, symptoms come on very slowly, and there is fever, failing health, weakness, loss of flesh, colicky pains in right iliac fossa, flatulence, loss of appetite, constipation alternating with diarrhœa. If there is ulceration of mucous coat, diarrhœa, hæmorrhage, exhaustion.

When perityphilitis takes place, that is, inflammation of the areolar tissue connecting the cæcum with the psoas and iliac muscles, there are severe shooting pains down the right iliac region; constipation or diarrhœa, with tenesmus, nausea, mental depression, pain and tenderness over cæcum, with tumefaction and increased resistance to pressure, and perhaps fever.

Treatment must be carried on on general principles. If there is fever, aconite and gelseminum. Opium is our chief remedy; not as an anodyne, but on account of its peculiar action on the bowels. The crude drug in pulverized form, with two or three grains of ipecac, every three hours. It has a magical effect upon the cæcum and appendix, and must be given in all cases. Olive oil enemata morning and night; mucilaginous drinks; hot linseed poultices; perfect rest in bed; milk and beef-tea diet. If symptoms of suppuration set in, quinine and stimulants.

DIARRHŒA.

In health, the ingesta of the intestines completes its revolutions once in twenty-four hours. In that period the process of digestion is completed, the carrying forward of the contents of the food digested in the stomach converted into chyme and chyle, and its expulsion, after seven or eight hours of refreshing sleep, as feces should be accomplished; and this, to be in perfect accordance with healthy laws, should take place after the peristaltic wave has been excited by the mastication of the morning meal. Any deviation from that rule is disease.

Diarrhœa is a condition in which there are more frequent evacuations of the bowels without pain; properly speaking, a weak or relaxed condition of the mucus, serous, or muscular coats, which gives rise to liquid stools.

Causes.—Climatic changes, fruits, drugs, acidity, improper food, excess of bile, nervous shocks, disease-germs, ulceration of bowels.

Symptoms.—Purging, nausea, tongue coated, foul breath, flatulence, and griping; acid eructations; some bearing down; stools are either watery or mostly mucous, or contain an excess of bile or indigested food, or mucus and blood.

This brings about a division into serous, mucous, biliary,

feculent, etc. A point of importance in the treatment of each.

Feculent Diarrhœa.—The most common form of diarrhœa among over-indulged and over-fed children, or among adults who eat indiscreetly.

The characteristics of this form of diarrhœa are, looseness of the bowels, with or without griping pain; discharge of partially digested food, with serous and mucous exudation, sour-smelling, frothy, and fetid, of different odors and colors. This condition is accompanied by partial or complete loss of appetite, pain in the stomach, swelling and tension in the lower part of the abdomen; cold, dry skin; thirst, nausea, straining; urine scanty; weakness and fainting.

Causes of this form of diarrhœa are heat, confinement, dentition, worms, irritating and indigestible food, as mince-pie, pastry, nuts.

In the treatment of all forms of diarrhœa, there should be worn a flannel roller around the abdomen, and rest in the recumbent posture, and very little food or drink for ten or twelve hours.

If it occur during the period of dentition, look to the gums, and, if teeth are penetrating through, scarify. Small doses of the neutralizing mixture should be given repeatedly, followed by compound syrup bayberry.

If caused by indigestible food, an emetic of the wine of ipecac, in doses according to the age of the child; follow with compound licorice powder, so as to cleanse out the bowels. If tongue is still coated, give aromatic sulphuric acid and quinine; if tongue is clear, give an infusion of bayberry and poplar bark. Use no astringents. The diet should be confined chiefly to milk, beef-tea.

Serous Diarrhœa.—In this form there is a relaxation of the capillaries, usually of both serous, and mucous coat. Their vitality is much impaired, and exudation of serum takes place in great abundance. The roller, and rest. If tongue is coated, avoid astringent remedies; give solid food, and use mineral acids, as aromatic sulphuric acid, and quinine, compound tincture cinchona. If the tongue is clean, astringents can be given with propriety, as a drink of boiled milk, with cinnamon sticks and lime-water, infusion of crane's-bill, tincture of catechu.

Biliary Diarrhœa.—Usually some derangement of the liver, either from heat, malaria, whisky, or carbonaceous food, or from congestion by cold or mental emotion, or some other condition that causes the bile to be poured out in excessive quantity.

It is easily recognized by the brown-coated tongue and ginger-bread appearance of the stools, thin and brown.

In the treatment, rest, hot fomentation over liver; if there is nausea, an emetic; cleanse out bowels with compound licorice

powder; then follow with compound tincture cinchona and nitro-muriatic acid, or hydrastine, quinine, and nux vomica, and a milk diet.

Muco-Purulent Diarrhœa is best treated with infusion of bayberry and poplar. If that fail, and mucus or pus is persistent, try turpentine in acacia or carbolic acid and tincture of iodine; if tongue is clean, opium and tannin in pill form.

Chronic Diarrhœa.—This form of diarrhœa is said to exist when either of the others last for a long time. There is very apt to exist some ulceration of either the mucous or serous coats. In chronic diarrhœa we have also to contend with a perfect loss of tone in the bowel, an inability to digest or hold its contents. In this form the diet should be solid, highly nutritious, the roller should be worn, and rest inculcated; no fruit; an alterative and tonic course invariably; movements of bowels restricted to one per day by the opium and tannin pill, or by the tincture of kino and chalk mixture; a strong infusion of bayberry should be made every morning, with some poplar bark or a little capsicum; this the patient should drink during the day; no drug in the *materia medica* like bayberry for invigorating the different coats of the bowel. Its continued use does not impair its efficacy.

Diarrhœa in Typhoid.—As a general rule, the antiseptics take care of it, especially the carbolic acid and iodine mixture; but if it is troublesome and not controlled, it is to be regarded as a distressing and dangerous symptom. It must be arrested; never encouraged on the fallacious idea that the germs escape by the stools. True, the retention of the germs is bad, but diarrhœa is weakening and dangerous, as it tends to rupture of the thin-based ulcers on the bowels. Opium and tannin should be given sufficiently often to control.

Melæna or Black Stools.—Diarrhœa, with stools like tar, is due to the presence of blood from the stomach or bowels acted on by the intestinal juices. Degeneration of the liver necessarily gives rise to congestion of the gastric and intestinal vessels, a condition that gives rise to extravasation of blood from the gastro-intestinal membrane. It may be present in enteritis and other morbid conditions of the alimentary canal.

CONSTIPATION.

Constipation may be confined to a condition in which there does not take place the usual act of defecation once in the twenty-four hours, but it is delayed for some days. It is to be regarded as a condition of gastro-intestinal torpor, but no structural disease. The natural peristaltic action of the bowels is changed and deranged from some cause. It may be due to carelessness and non-attention to natural laws, want of exer-

cise, improper food, a deficiency of bile, want of nervous energetic, or impaired vital force, such as exists in tuberculæ, anæmia, chlorosis, debility.

Symptoms.—An arrest of the peristaltic wave from whatever cause impairs the function of the stomach, liver, and pancreas. It gives rise to mental and physical depression or oppression; a sallow and pasty complexion; foul breath, dry skin, scanty urine; no stools, or only a scanty, pale-colored one, very offensive every few days; a loss of all power for exertion, distressing headache, aggravated palpitation, severe neuralgia, and confirmed hypochondriasis.

Treatment.—The cure of constipation by purgatives is not in accordance with the principles of either common sense or true science. To cure, we must know the cause upon which it depends, and cure by the removal of cause, and by imparting tone, vigor, by bathing, proper food, exercise, stimulating the biliary secretion, arousing nervous energy, and improving the secretory and peristaltic powers of the intestines.

We commence, then, with the diet, and inculcate abundance of wholesome, digestible food, with vegetables, ripe fruits, and, when out of season, figs, prunes; oatmeal porridge, brown bread; tumblerful of water before retiring to bed. Sedentary habits are to be avoided; moderate exercise; bathing daily—ordinary bath followed with shower. Immediately after the morning meal, an enemata of cold water, to be retained as long as possible, thus soliciting the bowels to respond at a regular hour daily. With this simple management, inculcate a law of habit, which has a beneficial effect in constipation—a habit of defecation at a particular time daily, and, to conform to physiological law, after the morning meal. The act of mastication, slow and thorough, starts the peristaltic wave, and propagates its impulse to the entire thirty-two feet of bowel. Water is a good remedy in constipation; when the stomach is empty of food, a glass or more should be taken. Its use is often attended with marked benefit.

In constipation irrespective of cause, or what is termed habitual, one teaspoonful of cascara sagrada, fluid extract, at bed-time, will at once relieve it; continue for a few weeks till law of habit is established. Gentian, collinsonia, golden seal, from among bitter tonics, are quite efficacious. Ox-gall, dried to the consistency of soft putty, in doses of from five to ten grains daily, alone or combined with extract of *nux vomica*, is also useful. If the constipation be due to want of nervous energy, *nux vomica* is the best remedy; the tincture in from eight to fifteen drop doses in water, thrice daily. If due to a deficiency of bile, then such remedies as *leptandra* and *nux sulphur*, or compound licorice powder, nitro-muriatic acid in

compound tincture of cinchona, dandelion, and other remedies to rouse up the action of the liver. The practice of kneading bowels, electricity, etc., is not to be commended.

OBSTRUCTION OF THE BOWELS.

Intestinal obstruction is a fearful disorder, which may arise from a large variety of causes. The most common of all causes are those that arise from strangulated hernia, and, in all cases of obstinate constipation, it is well to be on the lookout for hernial protrusion or twisting.

Intestinal obstruction is usually divided into three classes, viz.:

(1.) Intermural, or those originating in and implicating the mucous and muscular coats of the intestinal walls.

(a.) Cancerous stricture.

(b.) Non-cancerous stricture, comprising:

1. Contractions of walls of intestine from inflammation, deposit of lymph, or structural injury.

2. Contraction of cicatrices, following inflammation and ulceration.

(c.) Intussusception.

(d.) Intussusception associated with polypi.

(2.) Extramural, or those causes acting from without, or affecting the serous covering.

(a.) Bands and adhesions from effusion of lymph.

(b.) Twists or displacements.

(c.) Diverticula.

(d.) External tumors or abscesses.

(e.) Mesenteric hernia.

(f.) Diaphragmatic hernia.

(g.) Omental hernia.

(h.) Obturator hernia.

(3.) Intramural, or obstruction produced by the lodgment of foreign bodies.

(a.) Hardened feces, concretions having for their nuclei gall stones.

Of these different forms, the most common and the most important is intussusception, which occurs most commonly among women and children, the symptoms being sudden collapse, and seizure of abdominal pain, rigors, nausea, vomiting, not always constipation, passage of bile and blood. In spare ladies, a tumor can be felt at the seat of invagination.

Causes.—Blows, falls, strains, lifts, bearing down, coughing, jumping, running, injuries which may give rise to displacement and inflammation.

Symptoms.—Nausea, vomiting, first of mucus and contents of stomach, but, in a few days, fecal matter. Pain very severe, tympanitis, hiccough, mental depression, usually constipation;

increased fulness and tenderness can often be detected over the obstruction; early prostration; either acute peritonitis, or tetanus, from reflected irritation, liable to set in. Patient may die of either.

Intussusception is a condition of the bowel in which one part of the bowel is drawn into another, just as the finger of a glove is pulled within itself. Owing to the congestion and effusion that result from the irritation, the canal of the bowel is more or less obstructed. The intussusception may be single, or there may be half a dozen or more. Common in both sexes in all ages; of very frequent occurrence, after labor, in large, flabby women.

Symptoms.—Collapse; sudden, violent pain, sickness, vomiting, rigors, biliary diarrhœa; other cases, constipation. If spontaneous reduction does not take place, one of two things will happen: either reflex irritation and tetanus in those whose nervous system is depressed, or inflammatory symptoms, peritonitis, with inflammation of the coats of the bowel, which may terminate in gangrene; in either form apt to prove fatal.

Treatment.—When in doubt, castor oil and opium are our remedies. If satisfied that a mechanical obstruction exists, rely on opium, or opium in alternation with belladonna—a grain of opium every three hours. It has a most excellent effect on the coats of the bowel. Crude opium has a better action than morphia. Add ipecac if belladonna does not operate favorably. Hyosciamus, two grains to one of opium, repeated every two or three hours, operates well, as the hyosciamus has a special action on the walls of the bowels; affords relief in the most desperate cases; hot bath; enemata of large quantities of fluid, with gentle manipulation of intestines by pressure on them through the abdominal walls; inflation by air while under chloroform.

Intestinal Concretions.—Calculous concretions are rare in the intestines of human subjects, compared with animals. In man they are more common in cæcum and colon than in other portions of the alimentary canal. A gall-stone or foreign body may attract around it imperfectly crystallized earthy salts and indigestible fibrous matter in concentric layers. Other concretions may consist of hardened feces, with the phosphate of lime and magnesia, or of chalk or carbonate of lime, where these substances have been largely taken; or of hair, cotton, paper, where a depraved appetite has led to their being swollen; or of gall-stones with layers of inspissated mucus and fecal matter. Either kind may increase in size until there is a perfect obstruction of the gut. In fortunate cases, concretions have been expelled by vomiting or by stool. If situated in the rectum, they may be scooped out.

Intestinal Perforation.—The intestine may be perforated:

1. By incised or other wounds.
2. By disease in the coats of the bowels, as the ulceration of typhoid fever, inflammation of cæcum, dysentery, ulcer, cancer, etc.
3. From extension of ulceration in disease of adjacent organs, as in abscess of liver, calculi in gall-bladder, ovarian tumors, extra-uterine pregnancy, ovarian abscess, cancer of uterus and vagina, suppuration in abdominal parietes.

FLATULENCE.

An accumulation of gas in the intestines may take place from various causes, as the product of fermentation and imperfectly digested food. The flatus is most abundant a few hours after food; no derangement of the general health; often produced by green vegetables, as peas, beans, or any food that quickly undergoes decomposition or fermentation.

It may also be due to the air swallowed in supping food, or to disorder of the gastric and intestinal mucous secretions, as in dyspepsia, atony, and weakness of the bowels.

Besides being an accompaniment of indigestion, disorders, of stomach and bowels, intestinal obstruction, organic disease of the liver, peritonitis, typhoid fever, uterine irritation, etc., it may also depend on nervous causes. In all cases the removal of the cause, the avoidance of a diet liable to ferment, as peas, beans, etc, and the use of compound tincture cinchona, and nitro-muriatic acid, gentian, ammonia and chloroform—drugs that tend to brace up the bowels.

COLIC.

This is characterized by severe griping or twisting pain in belly, especially about the umbilicus, occurring in paroxysms. Pain generally relieved by pressure; never aggravated by it; there is often vomiting, and generally constipation; an entire absence of fever and inflammation. During an attack pulse is lowered; surface of the body cold; face white and anxious. There are numerous varieties, as flatulent, bilious, nervous, brass, lead, and other minerals.

Flatulent Colic.—Generally due to excess or indigestion, accompanied by wind; relieved by eructation, or explosion of gas, or by vomiting or purging. Best relieved by the administration of a gentle emetic of a teaspoonful of common salt, and half a teaspoonful of mustard in half a tumbler of water, or lobelia, followed by tonics and aromatics.

Bilious Colic.—The irritation of acid or acrid bile, or other morbid secretions, often irritates the nerves of the bowels, and causes contraction of the muscular coats.

In those cases there are usually the dullness, the brown coat on tongue, the yellow tinge on the white of the eye, fœtor of breath, etc.

This is best relieved by the administration of small doses of the anti-spasmodic tincture, or a warm infusion of the wild yam or dioscoria, followed up with the compound licorice powder, or neutralizing mixture, with leptandra, oil of peppermint and anise, or with more active remedies to stimulate the liver, as phosphate of soda or nitro-muriatic acid.

Nervous Colic comes on from fright, cold, hysteria, gout, rheumatism, or from irritation of adjacent organs, as the bladder, uterus, or morbid conditions of the alimentary canal.

This must be promptly relieved by the administration of chloroform in sweetened water internally, or belladonna, or anti-spasmodic tincture, phosphate of quinine, colchicum, and the cause removed.

Tin Colic.—This form of mineral colic has become very common since the introduction of canned vegetables, fruit, beef, fish, and also caused by cooking soup in tin culinary vessels on petroleum cook stoves.

Relieve the pain and spasm by the usual means, and put patient on iodide of potassa and carbonate of ammonia.

Copper Colic.—A most severe form of twisting or griping; comes on suddenly; pain is intense; nausea, vomiting; bowels generally loose. The countenance is anxious, of a peculiar, sallow hue; eyes sunken and lips livid; a purple line around gums. Common among copper-plate printers, brass founders, and from copper cooking vessels. Treatment same as lead colic.

Bismuth Colic.—Bismuth introduced into the stomach blunts the sensibility of the gastric nerves, but when extensively used, as it often is by ladies in face powders and cosmetics, gives rise to colic, with a peculiar bluish, shrivelled, or wrinkled appearance of the skin, and after death, the duodenum is black with the debris of the metal. Same treatment as lead colic.

Lead Colic.—Due to the absorption of lead; hence, it is common among operatives in lead works, oil-cloth factories, painters, plumbers; drinking from lead pipes, soda water from lead taps, snuff adulterated with lead, claret drinkers, as sugar of lead is often added to wines to render them cooling; and wine casks absorb the lead, and if ever used for carrying water in ship, they re-impregnate the water, and the sailors, or those drinking the water, become affected. Lead, whether inhaled by the skin or bronchial mucous membrane, or absorbed by the glands of the mouth, or swallowed in water or food, or breathed from a newly painted room, diffuses itself through the body, but seems to spend the force of its poisonous effects on the fine,

delicate nerves of the duodenum, giving rise to an irritation which speedily terminates in a spasm or contraction of the muscular coat of the bowel, so that it is usually ushered in by a grinding or twisting near the umbilicus, with retraction of the abdominal muscles to the spine, and pain in the back, vomiting, constipation, metallic aspect of countenance, a blue or slate-gray line round edges of the gums, with general languor and debility.

Treatment.—To prevent absorption of this metal, workmen employed in or about it should exercise great care resorting to daily baths, wear flannel clothing, keep bowels regular, eat the most nutritious diet, and spend a good portion of time in open air.

Aromatic sulphuric acid, fifteen drops thrice daily in water, prevents absorption, and is undoubtedly the best prophylactic. Alum is not a preventive, but, if given after the lead is in the fluids and solids of the body, it will unite with the metal and form an innocent sulphate. Although alum has this remarkable chemical property of changing the lead, it does not prevent its ingress into the body, like the aromatic sulphuric acid.

In suffering from an attack, the first thing to be done is to relax the spasm, and relieve the patient from pain. The compound lobelia, with capsicum and valerian, should be administered by mouth and rectum in small doses, often repeated, so as not to excite emesis; and if the spasm does not yield, administer thirty drops of chloroform with it for several times. Relieve pain by hypodermic injection of morphia.

As soon as the spasm is relaxed, and a free motion of the bowels brought about by oil, begin with iodide of potassa. This drug unites with the lead, sets it free, and also eliminates it by the skin, kidneys, and bowels. The dose of the iodide should not be less than five grains, three times daily; but it is often beneficial to give it in ten-grain doses, and combine it with either bicarbonate of potassa or carbonate of ammonia: the whole to be given in syrup of stillingia compound. While pursuing this treatment with iodide, an every-day bath of the sulphuret of potassium. This should be done in a wooden bath-tub, with tepid water enough to cover the body, to which one pound of carbonate of soda and sulphuret of potassium should be added. The patient should remain in bath not less than half an hour, even a little longer.

The diet should, while pursuing this treatment, be generous to a fault.

ENTOZOA.

The parasitic animals which infest the human body are very numerous, and are in all respects different from disease-

germs. A parasite is an organism that lives upon another organism. The organism does not evolve the parasite. The parasite is the descendant of a pre-existing parasite; not an evolution or emanation upon and by which it lives. The living, growing cells of the human body are not parasites, nor no amount of degradation can make them parasites. Every cell in the human body has been formed by direct descent from the original embryonic mass of bioplasm. The living matter of each cell is capable of growth and multiplication, but it cannot be looked upon as a parasite upon other cells; for its parentage is the same as theirs. Even degraded cells, such as tubercle, cancer, should not be regarded as parasites living upon healthy cells, although many forms of altered bioplasm can be transferred from animals to man, and grow and multiply. All such have been derived from normal cells, which would grow and multiply if transferred from one organism to another. As living matter retrogrades, it acquires the power of living upon much less elaborate pabulum than the normal bioplasm, and it may even appropriate different kinds of pabulum. Its rate of growth and multiplication is far greater than that of normal bioplasm from which it came, and it retains its vitality under circumstances which would have entirely ensured the destruction of the latter. A parasite is as much a species as the living being upon which it feeds; a parasite possesses individuality and characteristics which it can transmit for countless ages.

(1.) *Fasciola Hepatica*.—Liver fluke. This has been found in the human gall bladder and feces. It is quite small—less than half an inch long, and a quarter of an inch broad; quite flat, covered with minute spines of an oval form, and capable of contraction, like a leech; has an oral and ventral sucker, the orifice of the male and female organs being placed side by side, near the ventral sucker. Bile is its nourishment. There are four other varieties of the fluke family, mostly found in the bile and intestines; some of them so very small that they seem capable of passing out of the intestines, and have been found in the eye.

(2.) *Distoma Hæmatobium*.—A cylindrical trematode worm, nearly an inch in length; males and females distinct; former the largest, and having on under surface of abdomen a longitudinal groove, in which the female is lodged during copulation. It inhabits the vena portæ, and the veins of the mesentery, liver, bladder, kidneys. It is very common in our Southern intermittent, especially along the banks of the Mississippi, and gives rise to hæmaturia.

(3.) *Tetrastoma Renale*.—Has a small oval, flattened body,

about five lines long, and provided with four suckers, is found in the uriniferous tubes of the kidneys.

(4.) *Hexathyridium Pingicola*.—A flat trematode, about eight lines in length, often found in ovarian tumors.

(5.) *Hexathyridium Venarum*.—About three lines in length, found in the sputa of those affected with chronic bronchitis.

(6.) There are five different forms of tape worms found in the human body, out of the two hundred and fifty said to exist.

(a.) *Tænia Solium*.—This is a large cestode helminth, which, when mature, may measure thirty-two feet, and in breadth, half an inch. Its head is very small and flattened, and provided with a projecting papilla, armed with a circular row of hooks and four suckers; the neck long and narrow. The cysticæ, or pork measles, is the larva of this tape worm. See *Intestinal Worms*.

(b.) *Tænia Mediocancellata*.—A cestode worm, attaining a great length, and having larger segments than the solium. Head is furnished with large sucking-disks, but destitute of a rostellum and hook apparatus. The cysticerci or measles that produce this worm are to be found in the muscles of cattle. This hookless worm is quite common.

(c.) *Tænia Marginata* is very rarely found in man, but common in the dog.

(d.) *Tænia Echinococcus*.—A very small cestode helminth, infesting the dog and wolf. In man it is met with in the female breast, testis, brain, spleen, liver, heart, lungs, and in bones.

(e.) *Bothriocephalus Lotus*.—A very large cestode helminth, measuring over thirty feet, and over an inch wide, and is the largest ever met with in the human body. Each joint or segment possesses its ovary and sexual apparatus.

(7.) *Ascaris Lumbricoides*.—In size and appearance like the ordinary earth worm, only white instead of red. Males, about six inches long; females measure twice as long.

(8.) *Ascaris Mystax*.—A nematode worm characterized by the presence of aliform appendages, one being placed at each side of the head. Males, two and a half inches long; females, double that length. Common in cats, and also found in human body.

(9.) *Ascaris Trichinæ*.—A long thread-like worm found in the rectum, colon, and cæcum. Males measure three-quarters of an inch; females, two inches in length.

(10.) *Trichinæ Spiralis*.—See *Trichinæ*.

(11.) *Filaria Sanguinis Hominis*.—A microscopic worm found in the blood of those suffering from chyluria. See *Filaria*.

(12.) *Filaria Bronchialis*.—Commonly met with in bronchial and lymphatic glands in chronic bronchitis. Measures from a quarter of an inch to one inch.

(13.) *Strongylus Gigas*.—Not uncommon in the human kidneys.

(14.) *Sclerostoma Duodenale*.—A small worm about an inch in length. It seems to be associated with anæmia.

(15.) *Oxyuris Vermicularis*.—The smallest of the intestinal worms peculiar to man, occupying the rectum.

(16.) *Dracunculus Medinensis*, or Grecian worm. See *Dracontiasis*.

(17.) *Pentastoma Tænoides*.—It is found in the wolf and dog, and its larva has been found in bronchial tubes and bowels of man, but it does not grow.

(18.) *Pentastoma Constrictum* has been found in the liver of the negro and Mongolian.

(19.) *Pseudelmenths*.—A large number of worms have been introduced into human excrement for the purpose of deception.

INTESTINAL WORMS.

The number of animal parasites that inhabit the alimentary canal are variously described as between thirty and thirty-five, but this enumeration only tends to gratify a morbid curiosity; for, practically speaking, they can be included under three distinct heads, so as to embrace symptoms and cure.

Predisposing Cause of Worms Generally.—In health, no disease-germ, parasite or fungus, can breed or grow in or on the human body, but if depressed or weakened, or devitalized, there is then a field for them to grow, if the larva or seed is introduced.

Exciting Cause.—The spontaneous germination of parasites is opposed to all scientific truth. In all cases, the larva or eggs must find their way in by the skin, breath, drink or food.

General Symptoms.—These are somewhat variable when worms exist; still, the following are nearly always met with: capricious appetite, acid eructations, pains in the stomach, grinding or grating of teeth during sleep; fetid breath, coated tongue, picking at the nose, white or pasty appearance of the countenance, dark ring about eyes and mouth, hardness of abdomen, griping pains about umbilicus, itching at rectum and fundament, irregularity of bowels; an indescribable feeling of debility, often heats and colds; short, dry, hacking cough; general emaciation; often febrile paroxysms; irregular pulse. Reflex symptoms: epilepsy, convulsions, chorea, twitching. In girls, even very young, leucorrhœa; in boys or men, irritation of the ejaculatory ducts, spermatorrhœa, or masturbation. The only conclusive sign of worms is their passage, or a joint of them in the stools.

Treatment.—As the presence of worms in the alimentary canal is an evidence of the want of tone or vigor, the greatest attention should be paid to the general health, clothing, bathing, diet, hygiene; rigidly avoiding pork, starchy, or saccharine articles of diet. Remedies calculated to give strength to the system, and vitalize the bowels, should be given; cinchona and mineral acids, to promote assimilation; infusion of golden seal, gold thread, or bayberry. This is a special treatment for the expulsion or destruction of the parasites.

(1.) *Ascaris Vermicularis*, or *Ascarides*.—A very common variety; white, and thread-like; very slender, and only from one-fourth of an inch to an inch in length. They possess great celerity in their movements, and, when touched, contract to about half their length. Their seat is the large intestines, and are most abundant near the termination of the rectum, although they are occasionally met with higher up.

Signs of Ascarides.—Irritation, and intolerable itching and pricking sensation, and often some swelling at the extremity of the rectum; occasionally congestion, even inflammation, and discharges of blood, with tenesmus; often heavy mucopurulent leucorrhœa.

Treatment for Ascarides.—In addition to the general management of the case, enemas are of the greatest utility. It is impossible to effect a cure without them, such as injections of salt and water, lime-water, camphor-water, aloes, gentian, golden seal, etc., in infusion. Any of the above will kill and remove them from rectum.

(2.) *Lumbricoides* resembles the common earth worm; round and white, like a goose quill; varying in length from six to twelve inches. Their principal seat is the small intestines, but they are occasionally found in the colon and rectum.

Signs of the Lumbricoides.—Pricking and rending pain about the umbilicus; colic, with rumbling noise in the abdomen, occasioned by the worm nibbling or irritating the mucous membrane with the sharp, cutting point of its head.

Treatment of the Lumbricoides.—Our best drug is santonine, which acts upon the worm with powerful certainty. In the administration of santonine, always see if it is of a snow-white color; if it is, it is good; if yellow, or even slightly so, it is worthless—perfectly inert. It is a peculiar drug; acts on the brain, the coats of stomach and bowels, as a bracing tonic; improves assimilation, and thus aids nutrition. On account of its irritant action upon the brain in larger doses, especially upon the children of highly-civilized parents, it should seldom, under five years of age, be given in larger doses than a grain every other night; from five to ten years of age, in two-grain doses. Dissolve in a little hot water; cool, and

give before retiring. Early next morning a dose of compound licorice powder, or neutralizing mixture, or oil, sufficient to move the bowels; continue this treatment for two or three weeks. Santonine may chemically destroy the worm, or it may mechanically tear it up in shreds, which will float on top of water, if poured into the chamber.

(3.) Tape Worm.—Instead of five forms of tape worm that are ordinarily found in man, some think the number might be extended to nine varieties, out of the two hundred and fifty that are said to exist. Although some eight or nine have been found in his alimentary canal, still very few have been able to maintain an existence there except the *tænia solium*, and probably if it were not for his hooks and suckers, he would not long be a denizen of the human bowels.

The original source of origin of the tape worm (*tænia solium*) is from the hog. The *cysticercus cellulose*, or pork measles, is the larva or scolex of this tape worm; consequently, it is very common among pork-eaters. A heat of 212° Fahr. is supposed to destroy the larva, but it is doubtful. At all events, imperfect cooking, raw or partially-cooked sausages, hams, etc., the very great amount of which is consumed at lunches, forms an item in its production. Besides, the lovers of early vegetables, as lettuce, spinach, onions, cabbage, salad devotees, are great sufferers from this worm, as they are very generally manured from the contents of cess-pools, which are teeming with the ova of this worm.

It is very common among the inhabitants of all cities, who are compelled to drink water into which sewage has entered. Such rivers are loaded with millions of the ova of the parasite. We could name a city of a million inhabitants; one hundred thousand of its population having each a tape worm. Now, take that number, each having a large cestode helminth, which, in its sexually mature state or strobile condition, measures from twenty-five to thirty feet in length, and in breadth from half an inch to one inch, with a perfect ovary every three-quarters of an inch, each one containing five hundred ova, which keep breaking down daily, so that every two weeks the entire thirty feet break off, and we have a new production. Count the ova that are thus passed and drank in the water that supplies such a city; can we wonder at the great prevalence of the parasite, so long as sewage is permitted to enter water to be drank by man or beast?

The head or scolex is small and flattened, provided with a projecting papilla, armed with a double circle of hooks and four suckers or mouths, by which the worm attaches itself to the mucous coat of the bowels; the neck, long and narrow, continued into imperfect segments (sexually immature), which

gradually merge into distinct segments (proglottides) or sexually mature joints. The generative apparatus consists of a ramified canal or ovarium, containing the ova, and of a minute spermatic duct, both occupying the centre of each proglottis. Impregnation occurs by contact of one proglottis with another. It is probably nourished by imbibition through its tissues, just as other parasites imbibe nourishment from their surroundings.

Whether from the hog, or from water, or otherwise, the entrance of the ova into the human body is by the mouth; but the ovum will not hatch till it reaches the duodenum; in that delicate, velvety, eider-down bed it germinates and makes an attachment. Although there may be a large number of eggs swallowed, there is usually only one that makes it his abode.

Sometimes the ova find their way into the blood, and, if so, the ovum is very liable to be hatched in the brain, which is often a latent cause of sudden death.

Signs of Tænia.—This worm gives rise to most aggravated symptoms—a feeling as if something was alive in the bowels, with a sense of weight; bittings felt in the region of the stomach; the abdomen swells and subsides at intervals; the appetite is voracious; livid complexion; vertigo; dilated pupils; vomiting; convulsive tremor of the body; and if epilepsy is present, severe fits; small portions of the worm pass with the fæces, like gourd seed.

Treatment.—The armed tape worm is found exclusively in the human subject. It is difficult often to effect its expulsion, as it is armed with two small fangs, which enable it to hold on tenaciously to the mucous membrane. As every one has their own special formulæ for its death or expulsion, a brief enumeration of the various remedies will suffice: Pomegranate root bark, pumpkin seeds, male fern, kousso, kamala, etc., etc.

The properties of each are due to an active principle called valdivine, and which is more abundant in the pomegranate, kamala, and male fern. This is the most elegant and reliable of all remedies ever introduced, and very positive in its action; seldom, if ever, failing to bring away the worm, head and all.

As the parasite propagates from segments of the neck, it is of the utmost importance in its removal to effect its entire expulsion, especially the head.

TRICHINIASIS.

A peculiar febrile helminthic affection, attended with a train of symptoms very closely resembling typhoid fever. It is thought to be peculiar to rats, and from them finds its way into hogs, and through the latter into the human body. The trichinæ are usually swallowed in imperfectly cooked pork or sausage; breed in the intestines of man, and after being

hatched, migrate from the bowels to the various muscles of the body, and live upon muscular tissue. They are true parasites. Their presence in the muscles give rise to violent constitutional disturbance. The disease is becoming fearfully prevalent. Scarcely a rat in our large cities free from it; they often communicate the parasite to water, or are eaten by hogs; the flesh of the latter, and even their lard, being affected. It is generally conceded that they are effectually destroyed by a high temperature, although some doubt even that. Smoked or half-cooked sausages or pork is highly dangerous. They contribute greatly to the dissemination of the disease. There can be little doubt, if this article is to remain a staple article of diet, that the highest kind of heat possible, without destruction of the meat, is the only safe-guard.

Symptoms.—These will be very variable, depending upon the fact whether there has been many swallowed, the number of their progeny, and location of their migration. They embrace, however, general prostration, loss of appetite, nausea, diarrhœa, and painful stiffness and swelling of the muscles of arms and legs. Pain is, no doubt, due to emigration of young trichinæ into the muscles, their colonization, multiplication, and encystication. Rigors, headache, high fever; œdematous swelling of the face and eyelids; frequent pulse; copious, offensive sweats; urine scanty; excess of urates and uric acid—never albumen or sugar; great stiffness in joints; pain in muscles increases, become painful to the touch, and greatly swollen; movement of intercostal muscles attended with pain; thus preventing sleep; hiccough, if diaphragm is invaded; hoarseness and loss of voice, if they get into the laryngeal muscles. If a large number of the parasites have been swallowed, patient may become paralyzed, or suffer from profound exhaustion. Facial œdema continues for many weeks after recovery, associated or followed by swelling of the feet, legs, and body. If it lasts longer than four weeks, very unfavorable; pulse and respirations frequent; tongue dry and red; pain very severe, profuse sweating; mouth can scarcely be opened; no sleep; anxiety, delirium; death preceded by exhaustion. Complications very often prove fatal—pneumonia, pleurisy, peritonitis, dropsy, diarrhœa.

In another class of cases, patient may die from the preliminary shock. In more favorable cases, after running three or four weeks, symptoms abate—parasites become encysted and die. When the disease exists, there is not a single muscle in the body that is exempt from their localization.

The young trichinæ measure one-thirtieth of an inch in length; fully developed males, about one-eighteenth of an inch; females, half that size.

Diagnosis.—The above general symptoms can be most conveniently classed under four clinical types :

1. *Gastro-Intestinal*, in which the parasite burrows in the muscular coat of the stomach, bowels, diaphragm; in which there is grave digestive troubles without any apparent cause, as sensations of distension, nausea, and vomiting. The time of vomiting varies; it may occur immediately after the trichinæ pork has been eaten, or may be delayed several days. Usually, the vomiting is accompanied with diarrhœa. All those symptoms may be present in indigestion. If trichiniasis be suspected, the diagnosis may be readily made by the discovery of the entozoa in the stools. If the diarrhœa be excessive, the symptoms may resemble those of cholera or typhoid fever; but there are two characteristics here that may precede the diarrhœa—excessive perspiration, and extreme muscular prostration.

2. In this class, muscular pains predominate, even muscular exertion is painful, and causes fatigue. Towards the eighth day muscles are swollen, hard, tender, and the flexor muscles are always more affected than the extensors, and from the irritation of the muscles, shortening and contraction may result. Symptoms of lockjaw, difficult deglutition, due to the presence of the trichinæ in the muscles of jaws, pharynx or larynx; the voice may be altered, and if the parasite lodge in the intercostal muscles and diaphragm, there may be difficulty of breathing. To these may be added pains, irregular in their distribution, not corresponding to the course of the nerves, which resemble rheumatism. Besides, there is likely to be disturbance of the stomach and bowels, which should arouse suspicion.

3. The most characteristic is œdema or swelling. The patient appears with swollen face, especially the eyelids; and there is great prostration. The swelling may occupy one side of the face, or both. This kind of swelling, with heat and urine normal, with muscular prostration and some gastro-intestinal trouble, can leave little doubt of the complaint.

4. The typhoid form bears a strong resemblance to typhoid fever; there being fever, prostration, difficulty of breathing, and much muscular pain; still the profuse sweating, the œdema of the face, which is present in nine cases out of ten of trichiniasis, and the very brief period of fever, which ceases while the other symptoms grow worse. This last is the gravest form, and death may occur in a few days or in two or three weeks, with delirium, stupor, and general symptoms of prostration.

We have been thus particular in enumerating the diagnostic points, as thousands of human lives are annually sacrificed by this parasite, and the profession fail to recognize it. This want of recognition is a serious error.

Treatment.—No reliable treatment can be laid down; very

poor success with our best remedies; quinine in large doses seeming as efficacious as our best antiseptics; carbolic acid and tincture of iodine, salicylate of soda, hydrocyanic acid dilute, are each esteemed of great efficacy. But the best plan is to nurse and nourish well for four weeks, guiding the patient over the critical period; let the worm encyst itself and die; for this purpose, perfect rest, most nutritious liquid food and tonics should be given.

DRACONTIASIS.

Dracunculus, or guinea worm has a long, cylindrical body, about as thick as a crow-quill, and from one to twelve feet long. Usually found in the subcutaneous areola tissue of the feet and legs; common in malarial or swampy sections of country.

Symptoms.—A feeling of irritation in the affected part, where a cord-like ridge may be felt. There is always constitutional disturbance; headache, rigors, fever, nausea, colicky pains, debility. The parasite forms a sort of bed; its head causes a pustule to form in the skin, which breaks, and the head of the worm appears or protrudes.

Treatment.—When head protrudes, a thread is to be placed around it, and rolled on a pen-handle day by day; rolling the worm on it, and drawing it out gradually, until its extraction is complete. If it does not protrude, it should be removed by an incision; if possible, remove it without fracture. Wading in swamps, malarial, or marshy districts, or lying on the ground should be avoided.

FILARIA SANGUINOSIS HOMINIS.

Filarious disease may or may not exist with chyluria. The presence of this minute, microscopical, almost structureless worm in the human blood in vast numbers is merely the embryonic form of the filaria, which requires the mosquito in which to develop it into a sexually mature worm. The mosquito, feeding upon the human blood at night, when the filaria are to be most generally found in the blood, become gorged with them. Their growth in the body of the mosquito is great, and when liberated from the body of its host in the water, to which it resorts, the trematode is thus set free, and possibly undergoes further development in the water, or in the human stomach; for the mature worm when found in the lymphatics measures about three inches. Its passage into the human body is easily explained—either by drink or skin. Once within the body, it has a selective power, like the guinea worm or the trichinæ; but, instead of the subcutaneous tissue or muscles, it selects the lymph channels as a habitation. Its aptitude for choosing the lymphatics, or lymph scrotum, is remarkable, so

that the parasite is usually found in those suffering from lymphatic disease. From the present condition of our knowledge regarding it, which is imperfect, we are unable to give its life-history; its original mode of ingress; its duration of life; its habits; its power of sexual reproduction, and the myriads that do exist in an affected person; its peculiar periodicity—none being present in the blood during activity, but, when rest or night comes on, millions can be detected. It is very singular that just at the time the mosquito is most active, is the period in which they are to be found in the blood. One thing seems to be definitely settled, and that is, the embryonic filaria in the blood is a microscopic parasite, and remains or dies such; that, in order for their future development within the body, there must exist an intermediate state in the mosquito. What becomes of them in the blood streams of the body during the day or waking period is an unsolved problem.

The disease is only to be found in tropical latitudes.

More is wanting to enlarge our conceptions, not only of the manner in which this and other parasites may infest the human organism, but also of the remote effects their presence is capable of producing.

CHOLERA.

We must now realize the fact that the living germs of cholera are nothing more nor less than the degraded or damaged bioplasm of our own bodies. It sounds harsh, or grates roughly on the ear, that such a malignant germ could originate there, even though aided by the most unfavorable insanitary surroundings; for there is little doubt that imperfect drainage, improper food, impure water, fasting, fatigue, intemperance, uncleanness, breathing vitiated air, all aid in the production of the germ. From the reckless condition of modern society, it is a wonder that we are so free from disease-germs. There ought to be more attention paid to sanitary science. Many of our modern buildings are but murderous sepulchres, being contaminated throughout. The very hair in some plaster is from the hide of some animal that has died of anthrax. The atmosphere of many houses is tainted with sewer gas; neither ventilation, lighting or heating have been attended to. Heated with dry air from cellars impregnated with disease-germs; water-closets in houses, the reservoirs of contagion; the very earth in our large cities is contaminated. All sewers should empty at least five miles from human abode, and the water into which they empty should not be drunk by man or beast; all dwelling should have open fire-places, as they burn up man noxious poisons that would otherwise enter our bodies.

The term cholera is applied to the presence or develop-

ment of the cholera-germ in the infant, middle aged, and as an epidemic—conditions of the human body in which this special degradation takes place, which are brought about by diminished vitality, a lowered electrical state, abnormal meteorological conditions, with an absence of ozone in our breathed atmosphere, and other insanitary conditions.

Cholera Infantum.—This is common among children of all large cities in tropical countries, between the age of four months and two years. Children of the poor suffer most, or those who are subjected to the direful influence of modern pestilence; for it is really the case of the little god's kissing carrion—compelled to swelter in the hot, insalubrious, death-dealing atmospheres during the months of June, July, and August, the temperature ranging from 90° to 100° Fahr.

The degradation is brought about in one or other of two ways:

1. *By some Shock*, such as a fall, blow, rocking, concussion of brain, or by some reflex irritation, as teething, diarrhœa, or the action of some cerebral stimulant, as opium in a soothing cordial.

2. *By Irritation* of the stomach and bowels, caused by indigestion of swill or diseased milk, giving rise to acidity, fermentation, vomiting, diarrhœa. In the former case, it is central; in the latter, peripheral. In whatever manner it originates, the two conditions quickly coalesce, and the disease manifests itself as a nervous affection, with an irritation or paralysis of the eighth pair of nerves that supply the liver, and a chemical change in the secretions of the bile, which is highly acid and irritating to the fine, delicate nerves that supply the muscular coat of the bowels, which causes contraction of the muscular coat, giving rise to severe pain, frequent evacuations, loaded with the cholera germ.

Symptoms.—Those are well defined—nausea, vomiting, diarrhœa, great nervous prostration, or irritability; patient feverish, restless; heats and colds; skin white; sleeps with eyes partially open; rolls head, grinds teeth; wakes up with a scream; rapid emaciation; stools, at first greenish, become like chop-spinach; and prior to each motion of the bowels, the child instinctively draws up its knees and cries with the excruciating spasmodic pain in the bowels, from the passage of the acid or acrid bile loaded with cholera germs, irritating the fine, delicate nerves of the bowels; the urine is very scanty and high-colored. As the case progresses, there is more prostration; the skin becomes whiter and colder, and, in bad cases, bluish; the features shrunken and pinched; greater emaciation; breath cold, as the liver fails to secrete sugar for combustion, and the case grows worse and worse. If the patient

survives the first attack, the tubercular diathesis is created, and there is a complication in the deposit and growth of tubercle in or on membranes of brain, in or on the mesenteric gland.

The duration of cholera infantum depends very much on the vitality of the child, its surroundings, the capabilities of the mother, and denseness of population. Some cases will commence in June, and struggle through to September; whereas others, under less favorable circumstances, will be attacked and die in a few days.

Treatment.—Before considering the treatment, it might be well to ask the question—what means have we to prevent this terrible scourge in all our large cities? The insanitary condition of cities during the heated term, and the condition of overcrowding, does not admit of a remedy; but the vitality of the child and welfare of the mother can be taken care of. The mother is of primary importance—her health and comfort; her food should be nutritious; her mental and physical powers should not be taxed; she should do everything possible to maintain a very high standard of health, and avoid work, anxiety, or any depressing influence. Menstruation and sexual congress should be prevented during nursing. The health of the little one should be promoted by fresh air, good milk, flannel clothing, and in an especial manner by wearing the flannel roller round the abdomen, until they are two years of age. Daily bathing, followed by friction. Cradle-rocking to modern infants, whose parents' nervous system has been developed at the expense of the physical, is very hurtful. Dangling, shaking, or jolting is very injurious. The little one should be kept quiet, cool, free from jolt or motion, and from the solar rays. Its diet, until teeth appear, should be the mother's milk; and if that is not sufficient, cow's milk, very slightly diluted; no starchy article of diet permitted to be used, nor sugar in any form.

As soon as the disease makes its appearance, vigorous means must be taken to arrest it—an emetic of the wine of ipecac, followed with sufficient doses of the neutralizing mixture to open the bowels freely, followed with lime-water and milk, and a plaster consisting of equal parts of pulverized alspice, cloves, cinnamon, peruvian bark, and a very small amount of capsicum, wet with vinegar, spread between fine book muslin, and applied over entire abdomen; taken off every three hours, the caked mass broken up and re-moistened with vinegar. An evening bath is also to be recommended; well dried and rubbed, and followed by inunction of several ounces of warm olive oil. If case does not improve, then give liver a rousing up by administering one or two grains of leptandra in a little com-

pound licorice powder, following it up with teaspoonful doses of the expressed juice of raw meat every three hours; putting patient upon tincture of white hellebore, which has such an immense sphere of action on base of brain, eighth pair of nerves and liver—dose must be regulated by the physician in charge—and begin at once with antiseptics. From among that class of drugs, the ozone-water, the sulphurous acid, or tincture of idodine and carbolic, or the solution of chloride of lime, are probably the best to destroy the germ. Alkaline antiseptics, however valuable they may be, act rather freely on the liver. We cannot doubt the efficacy of the chlorate or permanganate of potassa, or sulphate of soda, but in few cases dare we sanction their use; so one of the above four must be selected, and administered often and with regularity. The entire success, or non-success in the treatment, consists in the use of antiseptics and nourishments. Head to be kept cool; socks, with dry mustard, to feet; fever to be controlled with aconite; any brain symptoms, the bromide mixture; and, above all, keep up nutrition, confining diet to mother's milk, milk and lime-water, and juice of raw beef.

If the case recovers, and means are available, the child should be removed to the country, away from the pestilential influence of a large city; a tonic, antiseptic course of treatment carried out for some months, with such remedies as glycerite of ozone, ozone-water, cinchona, and aromatic sulphuric acid.

CHOLERA MORBUS.

This term is applied to a condition of extreme nervous prostration, with cold skin, feeble pulse, interrupted respiration; cold breath; a cadaverous appearance of face; blue feet, hands, nose, ears, with nausea, vomiting, frequent motions of the bowels, with cramp or knotting of the intestines, and the cholera-germ in stools.

In our climate, with its inhabitants suffering from an incessant nervous strain or worry or struggle, we meet with cases of cholera morbus in all seasons of the year, chiefly among our adult males, although it is more prevalent when the system is enervated by heat, or when there are violent transitions from heat to cold. Climatic changes affect those who have their nervous systems prostrated by overwork or anxiety; and especially so if the stomach is irritated by offending material, as green or unripe fruit, some acid or acrid condition, acting on the stomach and liver as an irritant, or upon the brain, involving its base and eighth pair that supply the liver. The disease may be traced to other causes, but the true cause is to be found in a depression of the great sympathetic, eighth pair,

and brain, the spinal cord being involved to the first dorsal vertebræ.

Symptoms.—It usually comes on with nausea, soreness, pain in stomach, vomiting, purging, which rapidly exhaust the patient; when, by and by, those terrible cramps or knotting of the intestines by spasm, the features becoming cadaverous; breath cold; skin cold and clammy; hurried or short respiration; cramps in the legs; coldness of extremities; intermitting pulse.

Treatment.—This must be pursued with great energy. Administer at once thirty grains of bicarbonate of potassa in tepid water; follow quickly with an emetic of a mixture of equal parts of lobelia, capsicum, and valerian. Repeat dose after dose, until emesis is very thorough. Use the same as an enema. After the stomach is thoroughly evacuated, continue with same remedy in small doses sufficient to keep down spasm of the bowels. Apply artificial heat to stomach, feet, limbs. Open bowels either with neutralizing mixture or compound licorice powder. Commence, as soon as the stomach will retain anything, the tincture of white hellebore and antiseptics, as ozone-water, or tincture iodine, and carbolic acid or sulphurous acid.

The lobelia compound is invaluable for the relaxing of spasm and overcoming the prostration. If, after the bowels have been freely moved, the stomach is still irritable from the presence of the germs, and will retain nothing, administer the following: camphor, thirty grains; capsicum, ten grains; sulphate of morphia, one grain. Mix, and make ten powders; and, while triturating, add five or ten drops of oil of peppermint. Give one powder every half-hour.

After the stomach has been quieted, continue with antiseptics and tonics until recovery is complete.

EPIDEMIC CHOLERA.

Human beings, whose nervous systems are devitalized by overwork, exhaustion, privation, anxiety, struggle for existence, and subjected to depressed electrical states of the atmosphere, extraordinary meteorological conditions, and an absence of ozone, have within their bodies certain living elements altered or degraded by those adverse conditions into the cholera-germ. There can be little doubt but that this germ is the modified living matter, either of the base of the brain, the spinal cord down to the last cervical vertebræ, whence emanates the sympathetic, or else the eighth pair that supplies the liver. In proof of this, we often find cholera-germs in those whose nervous systems are shattered, and who suffer from diarrhœa. Besides, the appearance after death points to those parts as being at the

origin of the trouble. When once developed, it is capable, like all other contagious diseases, of being propagated by contagion and infection. It is not, however, contagious in a high degree, but can be carried by human intercourse, by clothing, merchandise, ships, undoubtedly often spread by water, milk.

Symptoms.—The symptoms of this disease are divided into three stages, which may be classed as follows:

1. *Irritability*, languor, lassitude, sleepiness, confusion of head. pale countenance with nausea, vomiting and diarrhœa.

2. In addition to the above aggravated symptoms, the discharges become light-colored and serous; white flakes and rice-water discharges appear; the pupil becomes contracted, spasms, cramps, coldness of body, with intermittent pulse.

3. *Blueness*, with rigid spasm, suppression of urine, collapse.

The general symptoms of those three stages in detail are as follows: copious vomiting and diarrhœa; stools are entirely destitute of bile, and consist mostly of water, containing large quantities of epithelium and albumen, resembling rice-water; they contain also a large quantity of chloride of sodium; cramps in muscles, causing them to contract into cord-like masses or knots; spasm; the pulse is soft and easily compressed; varies from 90 to 110; general temperature 65° to 70° F.; the expression of the features is ghastly or cadaverous; eyeballs sunken, glassy; cold, clammy sweat; breath cold; so is the tongue and mucous membrane of mouth; distress at pit of stomach, with burning; albuminuria, suppression of urine; great thirst; circulation gradually diminished; respiration impeded; hence great prostration.

The heart now becomes affected; so do the blood-vessels, by a spasm of their muscular coats. The sugar-generating faculty of the liver is suspended, so that there is an icy coldness of the skin and breath, and blueness of the lips and skin generally. The force of the germ-disease is on the nervous system, which becomes early and decidedly affected; hence the unnatural and whispering voice, shrinkage of the entire body, pinched features, and contracted pupils; muddy-looking complexion, sinking of the eyes, pupil immovable, cornea flattened. If symptoms are not relieved, the breathing becomes less frequent, the whispering voice spasmodic, and if the pulse is at all perceptible, thread-like and intermitting; circulation arrested from paralysis of the heart; intellect clear; evacuations involuntary, and not a trace of bile in the stools. If the patient survive forty-eight hours, and exhibit signs of improvement, he may recover rapidly if the pulse rises and the stools become bilious, and respiration and circulation be restored.

But very frequently improvement is only temporary, head-

ache, drowsiness, tonic or clonic spasm, vomiting, stertor, coma, ushering in death.

The appearance after death, aside from the rigid contraction and stony feel of the muscles are a white liver, effusion in the ventricles of the brain and spinal, the latter being congested and compressed by a serous exudation.

Treatment.—If an epidemic prevail, the most careful sanitary and hygienic measures should be observed, and the very highest possible standard of health maintained; the very best of food used; no green fruit; no alcoholic drink; no late hours; no mental or physical overwork; no overcrowding. The best preventative is small doses of sulphate quinine, and abundance of good food. On the very slightest derangement of the bowels—that is, nausea, vomiting, or diarrhœa, give small doses of the neutralizing cordial, with tincture of opium, until it is relieved. At the same time, apply sinapisms of capsicum and vinegar over the bowels and down the spine; and, as a drink, give sulphurous acid in water. Any other symptoms should be promptly relieved, the patient kept in the recumbent position for a few days, and plain, nutritious food given.

If the disease has set in, and is seen first in its premonitory or first stage, the patient should be put to bed in the best ventilated apartment in the dwelling; its temperature kept about 80° Fahr., and arrangements at once made to have him surrounded with dry heat, heated sand in bags. The diarrhœa and vomiting are evidently efforts of nature to get rid of the germ, and it is often a good plan right here to administer an emetic of equal parts of lobelia, bayberry, and capsicum. After it has acted, phosphate of soda in solution, so as to get the liver to secrete and discharge the bile; rub abdomen and spine with oil of capsicum cut with alcohol, and apply artificial heat, and let the drink be sulphurous acid and water.

Opium in every form is contra-indicated, because it increases the congestion of the cord. Large doses of bromide of potassa, ranging from fifteen to thirty grains, with ten of carbonate of ammonia, and twenty drops of tincture of calabar bean should be given frequently.

If the case is more advanced, pupils contracted, spasms, cramps, coldness, blueness, intermitting pulse, these symptoms are promptly met with the following:

Tincture of lobelia, capsicum, and American valerian, of each one ounce. Give a teaspoonful in water every half-hour, and occasionally a dose of the bromide, with tincture of white hellebore. Cholera-germs are difficult to destroy, but with the lobelia compound we have had good success. Of all drugs in the materia medica, it alone retrogrades the growth of the germ. Its properties are really incomprehensible; it holds the

position; no more are developed under its influence; it gives nature a chance to rally to legitimate work; every drop that is given benefits; the respirations become more frequent; heat increases; breath becomes warm; pulse, imperceptible at first, becomes wiry and full; blueness and contraction leaves the surface; the paralysis of the eighth pair is relieved; bile appears in the stools; spasm and contraction are relieved, and the eye acquires its brilliancy.

It must never be given to the point of vomiting; its action must be guarded, and held on to, and persevered with, so as to enable the vital forces to recover themselves. Its action is immense in cholera. If sinking is threatened, compound tincture of capsicum and quinine should be administered repeatedly. Juice of raw meat, well salted, should be given often. If thirst is intense, iced champagne or chloride of sodium, carbonate of soda and chlorate of potassa in water should be given. If vomiting is incessant, medicine and drink in small doses every few minutes, with capsicum over abdomen. Dry heat, in the shape of hot sand bags around the entire body of the patient, reaching from axillæ to toes, and from the groin down the inner aspect of the thighs, and also along arms; while being changed, friction with tincture of capsicum. Hold spasmodic action in abeyance. As soon as stomach settles, keep on with juice of raw meat, and give antiseptics, as ozone-water, or sulphurous acid, or carbolic acid and tincture of iodine.

In cholera the insulation of the patient is of great importance—bed in middle of the room, head to north, glass under feet of the bed.

The evacuations should be removed in a bed-pan, with a solution of sulphate of iron, and the greatest caution should be exercised in diet, allowing little but beef-extract, milk and bicarbonate of soda, farinaceous substances, until bile appears in the stools.

Convalescence should be established upon cinchona and mineral acids, baths, irritating plaster the entire length of spine, holding on to antiseptics for four or five weeks after recovery.

DYSENTERY.

A specific inflammation and ulceration of the mucous membrane lining the lower portion of the colon and rectum; attended with great constitutional disturbance; very severe or griping pains; mucous and bloody stools, and tenesmus.

This disease is one of the greatest scourges of our country—present every season of heat, and in almost every locality.

Its predisposing causes are tubercular diathesis, weakness, debility, solar heat. The exciting causes are moisture, dampness, a hot, oppressive atmosphere, ice-water, carbonaceous food,

crude or indigestible food, green fruit and vegetables, alcoholic drinks, mental depression, malaria.

These causes, with numerous others, do not operate upon the rectum and colon, but upon the liver. They cause congestion of that gland, and thus prevent or obstruct the return of blood from the lower bowel. There is a perfect anastomosing of the rectal and hepatic blood-vessels, so that if there is congestion of the liver, the blood is, as it were, dammed back in the rectum, cannot return to the liver, owing to this obstruction. The living, growing germs of malaria are, above all things, highly irritating to the liver. Their malignant virulence is manifest upon its interstitial and connective tissue, as well as upon the blood.

Symptoms.—Great constitutional disturbance in the acute form; rigors, headache, fever, biliary symptoms, brown tongue, sallow skin, conjunctiva tinged with bile, nausea, perhaps vomiting; frequent evacuations of the bowels, accompanied with pain and uneasiness of a griping or bearing-down character; the inclination to go to stool is frequently accompanied with tenesmus. At first, the stools are dark, ginger-bread color; then mucous, thin, scanty, bloody, and often mixed with little hard lumps of fæces. The scanty stools give great distress; the griping and straining, or tenesmus, is most excruciating, with evacuation; motions are often dark-colored, and peculiarly fetid, mixed with blood, muco-purulent matter, and shreds of lymph. The bladder sympathizes; micturition is frequent, and a constant desire to urinate; there is strangury, or only a few drops coming at a time; amount of urine scanty and high-colored; in some cases there are violent hæmorrhages.

It may last a few weeks and terminate in recovery, or run into a chronic form; or recovery may take place with thickening, effusion of lymph, and stricture, or gangrene of the bowel and death; or the patient may succumb to the violence of the fever and inflammation.

Treatment.—All cases are much benefitted by the action of an emetic of comp. lobelia, followed, if possible, with a bath, and some remedy, or combination of remedies to act on the liver, as comp. licorice powder or phosphate of soda, or nitro-muriatic acid. General treatment for fever, and administering green root tincture of gelsemium, aconite and digitalis, to slow the heart and check the blood currents; the gelsemium to be given freely. Its action on the liver is most desirable. Then annihilate or destroy the malarial germ; for this purpose a few large doses of quinine, say from ten to thirty grains, dissolved with a few drops of aromatic sulphuric acid in water every three hours, and every hour administer carbolic acid and tincture of iodine. To relieve that terrible pain and

tenesmus, enemata of starch and tincture of opium repeatedly, or else suppositories of opium; the most absolute rest in the recumbent position; not getting up on any consideration; room well ventilated; diet, milk, lime-water and beef-tea; hot poultices over abdomen, with opium; interdict the use of much drink; mouth can be washed out frequently; if there are many lumps of hardened feces or scybala being passed, a dose of castor oil and glycerine should be given; if there be much prostration, acetate of ammonia and quinine. If the motions are numerous, frothy, and bloody, an infusion of bayberry should be given. As soon as active symptoms subside, continue with quinine in small doses in aromatic sulphuric acid, and the tincture of iodine.

Subacute or Chronic Form is usually more intractable, as there is often atrophy of mucous membrane, with degeneration of intestinal glands, or the thickened cicatrices of ulcers in colon and rectum, with regular periodic chills. Most cases recover under above treatment; still there are a few that get well and relapse, become emaciated; their feces mixed with blood and pus, and very offensive, with exhaustion, tenesmus, and general debility, which often terminate fatally.

Treatment.—General alterative and tonic course; an avoidance of malarial locations; warm clothing; the occasional application of mustard over abdomen; the constant wearing of a flannel abdominal roller; very generous diet, milk, cream, eggs, broths; perfect rest; suppositories of opium and tannin; try the quinine and carbolic acid and tincture of iodine first; if it fails, then infusion of bayberry and crane's-bill, or logwood and kino, or the sulphate of alumina in tincture of iron. If there is any hepatitis, nitromuriatic acid in cinchona; any peritoneal irritation, opium; if constipation be troublesome, cascara sagrada. Other symptoms to be treated on general principles, watching the case closely from day to day.

INFLAMMATION OF THE RECTUM.

Rectitis or inflammation of the rectum may take place without the condition of dysentery. True, it is a rare form of disease, but it can be produced by violence, or the introduction of foreign bodies into the rectum.

Symptoms same as dysentery. There is, however, more intense heat and soreness about anus; severe pain shooting up the back and sacrum; spasmodic contractions and excessive tenderness of the sphincter ani; tenesmus, with passage of muco-purulent matter or blood; irritable bladder; constitutional disturbance.

Treatment.—Rest in bed; milk and farinaceous diet; opium and starch; enemata or suppositories of opium; mustard over

abdomen, followed by hot poultices; otherwise same treatment as dysentery.

STRICTURE OF THE RECTUM.

During dysentery or inflammation of the rectum, lymph is often effused about two inches and a half from the verge of the anus, or right at the site of the tenesmus. It may involve an entire ring or only half, or it may be more extensive; if it follows deep or extensive ulceration, and is thrown out in the process of cicatrization, it may be quite extensive, and cause a narrowing and induration of the whole gut round and round, and some distance vertically.

Symptoms.—Constipation; stools passed with great difficulty, in small, flattened, chopped-off pieces, from one to two and a half inches in length; very severe straining efforts in voiding motions if solid; pain in the loins and sacrum; flatulence; often mucous discharges stained with blood; if ulceration takes place above stricture, burning pain and tenderness about sacrum and fundament; discharges of blood and pus. The reflex symptoms are often very great: headache, constitutional disturbance, impairment of health, and depression of spirits; heats and colds, hypochondriasis, etc.

It must be distinguished by the history of case; the constriction (after bowels has been opened) should be made out with the finger, so as not to confound it with spasmodic constriction produced by sacral or lumbar irritation.

Treatment.—The patient should be instructed as to every possible means of maintaining a high standard of health, by daily bathing, flannel clothing, and a most generous diet; then placed upon a general alterative and tonic course; in the former using absorbents, as iodide of potassa, iodide of sodium alternately; the stools rendered soft and liquid by a dose of oil and glycerine before retiring at night. Then the introduction, about twice or thrice a week, of a metallic bougie, warmed and smeared over with an ointment of belladonna and iodide potassa, of a size that will pass easily through the stricture, and allowed to remain for over half an hour. The bougie should be ten or twelve inches long, and inserted gently up for six or seven inches, and gradually increased in diameter until the largest sizes pass easily. Take about three or more months if stricture is dense. Besides, suppositories of opium, belladonna, and iodide of potassa are to be used every night, or oftener, if patient can spare time to lie down. This is the best method of cure; it is not to be dilatation, but an absorption of the effused lymph. No other method of any value in organic stricture.

It is useless to experiment with sponge-tents, or to torture

the patient with dividing it by incision; or to burn it out with the galvanic cautery; or, by the more barbarous and less efficient mode of lacerating or tearing by forcible dilatation; there is no success, no merit, no good in these, and they should not be resorted to.

ULCERS OF THE RECTUM.

(1.) **Chronic Ulceration**, *with Thickening of the Coats of the Rectum*, may be the result of chronic inflammation, with effusion of lymph, or it may be due to the deposit of the germs tubercle, syphilis, cancer, or other morbid germs.

(2.) **Irritable Ulcer of the Rectum**, *or Fissure of the Anus*.—This is very common among children and ladies; looks like a very slight affection, but causes great suffering, and often convulsions. Ulcer generally superficial, about one-eighth of an inch broad, and one-third or one inch long, seated at the anus generally opposite coccyx. In children reflex symptoms are often bad; in women it causes ovarian irritation, irritability of bladder, and pain during sexual intercourse. Passage of stools irritates the sore, and causes spasm of the sphincter ani, and acute burning pain, which lasts some hours.

(3.) **Rodent Ulcer**.—This corroding or eating ulcer, is usually met with at the margin of the anus, the sore gradually creeping up.

Treatment.—In all cases, the general condition of the patient is to be attended to, nourishing food, daily bathing, warm clothing, and bowels kept loose with oil and glycerine, and the patient placed upon vegetable alteratives and tonics. The bowels should then be freely opened with castor oil, the patient placed under the influence of an anæsthetic, and a speculum of the proper size with a window in it should be introduced, sore cleansed, and touched with a potential caustic, C P nitric acid, say three times. Then apply extract of belladonna rubbed up in vaseline to the anus three times daily, and produce paralysis of the sphincter. At the same time lock up the bowels for a week, with sufficient doses of opium, and thus make an effort at healing. Failing in that the belladonna must be kept applied, bowels kept soluble, and belladonna suppositories, introduced into the rectum every night, depending upon active constitutional measures for a cure.

PROLAPSUS OF THE RECTUM.

Prolapsus of the rectum, or falling of the fundament or protrusion of the lower bowel, may exist in various degrees: it may be a protrusion only of the mucous membrane of the rectum, or the various coats of the bowel, or the bowel itself may be protruded several inches.

The cause is debility or weakness of the bowel—inherent loss of tonicity in its various coats, especially in its erectile muscular fibres. This may be brought about by diarrhoea, or looseness of the bowels, dysentery, or blood flux; by the irritation of worms, prolonged constipation, straining at stool, disease of the urinary organs, frequent micturition, stone in bladder.

Symptoms.—Usually the prolapsus at first only takes place after the bowels act. Gradually, however, the descent follows any exertion, as running, jumping, coughing, laughing, straining, or crying. Only a fold of mucous membrane at first, but by and by the inverted bowel is protruded to the extent of five or six inches. This may only occur after defecation, and it may be easily returned; but after a while the sphincter ani becomes greatly relaxed, and the prolapsus becomes constant; the intestinal mucous membrane being exposed to the air, and other sources of external irritation, becomes thickened or indurated, and sometimes ulcerated; discharge of mucus tinged with blood; a general distress about hips, back, with severe pains in defecating; reflex symptoms distressing; white face, indigestion, nervous twitching.

Treatment.—The first thing to do is to replace the bowel, which is usually easily effected, if the sphincter ani is not irritable, nor the coats of the bowels congested. If these two things have taken place, it may be necessary either to inhale a few drops of chloroform, or apply a poultice of lobelia and belladonna for a short time; then with the back of the hand well oiled, the bowel is easily replaced. When returned, it is to be kept in its place by applying a pad of lint, and drawing buttocks firmly together with a broad strip of adhesive plaster, or by the pad and a T bandage; castor oil and glycerine to be given at bed-time, and the patient made to pass thin stools in the recumbent position, so as to prevent straining. Immediately after defecation, a cold water hip-bath for several minutes. The general health is to be improved by every possible means; quinine and aromatic sulphuric acid, sulphate of cinchonine, compound tincture of bark, bayberry, etc.; very best of food, bathing, warm clothing; astringent enemata of decoction of oak-bark, matico, alum, before and after every motion; a suppository of tannin and cocoa butter as soon as retired to bed.

If medical treatment fail after a fair and prolonged trial, administer a large dose of castor oil at night; next morning, after bowels are thoroughly emptied and returned, introduce an anal speculum with a window its entire length up the rectum; wipe the surface clean and dry; then take C. P. nitric acid, and paint a line half an inch wide down the entire length

of the window once, twice, thrice; hold, a minute; turn speculum about half an inch; wipe clean, dry, and apply the nitric acid again in the same manner, and repeat until it is performed seven or more times—that is, seven distinct streaks or pillars. A species of plastic inflammation, or lymph exudation, takes place, thickening, and they resemble so many vertical supports or props. To render this radical or sure method successful, the patient must lie in bed over a week, eat very nutritious but concentrated food, and take one grain of opium every three hours to arrest all movement of the bowels, and when unable to hold out longer, a large dose of oil. This is the safest and most successful method of cure.

POLYPUS OF THE RECTUM.

Polypoid growths in the hollow organs of the body are common among those of a tubercular diathesis, brought about by irritation. They are usually either soft, gelatinous or villous, or of the fibroid form.

Symptoms.—Uneasiness about fundament; frequent desire to go to stool; mucous discharge, tinged with blood. There is more hæmorrhage in the villous form; they often protrude when bowels is moved.

Treatment.—If within reach of a ligature, apply one, and cut off with the scissors on the side of the tumor, allowing the ligature to slough off. Enemata of water, medicated with sulphate of iron, often cause the gelatinous ones to disappear.

Rectal Neuralgia.—Is usually severe, and is often mistaken for spasm of the sphincter, as it usually gives rise to pain in defecation, and if the finger is introduced it grasps it tightly. In neuralgia the pain is often excruciating, there is also tenesmus. The causes are obscure; it can be traced to disease-germs in the blood, to irritation, abortions, etc.

To be cured by nourishing food, alteratives and tonics, enemata of marshmallow and conium, belladonna suppositories, quinine, nux and camphor, and improvement of general health.

Cancer of the Rectum.—May be of the scirrhus, medullary, colloid or epithelial form.

Is very easily recognized by the cachexia, the early prostration, the pain, anterior and posterior, the appearance of the bowel to the eye, or by the touch, the discharge, the cancer cells, its peculiar fœtor, and, when well established, hæmorrhages, with loss of flesh and great exhaustion.

Treatment.—General treatment for *cancer*, and suppositories of the ozone cancer-plaster, which kills the cancer and does not touch the normal tissues; when exfoliated, iodoform sup-

positories. Pain must be relieved with opium, hypodermic injections of morphia and conium.

HÆMORRHOIDS OR PILES.

A varicose condition of the veins of the rectum. The cause is inherent or acquired debility or weakness of the veins. Walking, constipation, pregnancy, standing, drugs, such as aloes, etc., are exciting causes, together with an almost invariably present torpor or inactivity of the liver. They are divided into *external* and *internal*, *blind* and *bleeding*.

(1.) **External Piles.**—Consist of one or more or an aggregation of varicose veins, external to the sphincter ani. The knot may be soft and contain fluid blood, or the blood may have coagulated, forming a firm, dense, purple swelling, or the blood may have been absorbed, leaving nothing but hypertrophied skin and areolar tissue.

Symptoms.—If they are soft and bleed in the act of defecation, then they are bleeding piles; if they are a mass of veins whose contents are absorbed, filled up and coated over with lymph, and do not bleed, they are blind. Both are troublesome, from their bulk and location. If congested they are very painful, hot and throbbing. They give rise to tenesmus, irritability of bladder, and uterine irritation in women, and such reflex symptoms as headache, etc.

(2.) **Internal Piles.**—Are either bleeding or blind; consist of knots of varicose veins, or their degenerated structure, within the sphincter ani; likely to protrude during defecation, but as the case becomes chronic the sphincter muscle loses its tone, becomes relaxed; they may protrude at all times. If they are filled with blood, likely to be hæmorrhage. There is itching, a sense as if some foreign body was in the rectum with uneasiness, tenesmus, irritability of bladder; or, if in women, of the uterus, muco-purulent discharge, debility, loss of flesh, anæmia, sallowness of complexion, derangement of the functions of the liver, stomach and bowels.

Treatment.—In both external and internal piles of either class, the main object, in correct treatment, is to remove the congestion of the liver and build up the general health. For removing torpidity of the liver a well-regulated but nourishing diet, free from highly seasoned food and all kinds of alcoholic stimulants. Sulphur is an important remedy, one of the very best to keep up an active biliary secretion, the flowers of sulphur, compound licorice powder, tincture of sulphur. Our next best drug is tincture of nux vomica, chionanthus virg., kurchicine. Bowels to be opened every morning with enemata of cold water and extract of hamamelis, or tincture of perchloride of iron. If bleeding and internal, suppositories of the perchloride of iron

every night at bedtime causes them to rapidly shrivel up and disappear; if they are blind and internal, suppositories of iodoform will cause their absorption; if external and bleeding, an ointment of the perchloride of iron will arrest it; if blind, iodide of potassa in belladonna ointment will cause their absorption. With those remedies, a little time, patience and perseverance, there is no need of the barbarous treatment by caustics, excision, scoops, ecrasement, ligation. During treatment a general tonic course and the persistent use of hamamelis, with every possible means of improving the general health. Cold water hip-baths are not to be overlooked.

FISTULA IN ANO.

Anal fistula is very common, and consists of a tube or passage lined with a false membrane, which is a secreting tissue, and communicates with a cavity. It is met with in three forms—complete, blind internal, and blind external fistula. A *complete* one is when a probe can be inserted through the external opening straight into the bowel; *blind internal*, when inflammation has followed the body a certain length, and closed the internal opening, and left the outer; and *blind external*, when the mucous and other coats of the bowel have been perforated, the body proceeded some length, and either been regurgitated or dissolved, and left an opening down into the tissues, but does not penetrate the skin externally.

Causes.—Constipation, which distends the lower portion of the bowel to a great extent, and then a piece of hardened fæces, fruit-seed, fish-bone, or some other hard body excites irritation, inflammation and ulceration clean through, or otherwise forming a sinus, or fistulous ulcer. There may be one or half a dozen. Fistula does not necessarily either co-exist or depend upon tuberculæ. The tissues of a tubercular subject are soft and less vital, and the irritation of a body ulcerating through may attract germs, but it has no real bearing in the case.

Symptoms.—The external aperture is usually small, and sometimes difficult to find. It is generally near the anus, but it may be one or two inches distant; it may be concealed in a furrow, or will be found in the centre of a button-like eminence. Complete fistula most annoying, because gas, intestinal mucus, and fluid fæces pass along its tract, causing external irritation, and painful spasmodic contractions of the sphincter.

Treatment.—Whichever of the following methods may be decided on, first of all improve patient's health by inculcating good bathing, etc. Then cleanse out the bowels with oil, and select one of the following:

(1.) *Caustics.*—A large percentage of cases can be cured by caustics, as emptying C. P. nitric acid into the tract by means

of a deep-grooved rod, or making a tubular stick of chloride of zinc and flour, and inserting the whole length of tract, or the wire of a galvanic cautery. The bowels are to be locked up for a week or longer with opium, and patient to be kept quiet in recumbent position, and when bowels are opened, motions to be procured by oil. The success of this plan depends upon the effusion of plastic lymph to block up tube. Worthy of trial.

(2.) *Ligature*.—Seven threads of saddler's silk introduced through the fistula into the bowel by a flexible probe, brought out and tied upon a cork, and tightened daily, is a most effectual plan, as the effusion of plastic lymph follows the ligature, and the integrity of the sphincter ani is preserved intact. It takes from five to ten days to cut through or longer.

(3.) *The Ecraseur*.—To insert the chain of the ecraseur up through the fistula by a thread, and crush the parts, prevents hæmorrhage taking place in their division; but often, very often, the sphincter muscle of the rectum never unites, and the patient is in a very unpleasant situation.

(4.) *The Knife*.—This is used without ever estimating the bad results that are likely to follow. The fistula is divided into the anus, sphincter and all. The trouble here, if the patient is in feeble health, is the sphincter does not unite, and the patient loses all control of his bowels. If the patient is very vigorous, union may occur.

The use of the catgut, or elastic ligature and other means, are unworthy of notice. If there are several fistulas, they can be operated on at the same time.

The ligature is a little more painful, but is the safest, and always attended with the most happy results.

There are various other morbid states met with in and about the rectum and verge of anus, such as *gonorrhœa* of the rectum, *venereal warts*, *condylomata puritus*, which are described in another portion of this work, and are to be treated on general principles.

Besides, we often meet in prostitutes with poor constitutions, who are compelled, through extreme destitution, to eat bad, meagre or insufficient food—who indulge in alcoholic drinks, or have been mercurialized, or subjected to the depressing effects of insanitary surroundings, most destructive ulceration (phagedenic) of the skin and cellular tissue adjacent to the rectum. This gangrenous inflammation often produces extensive devastation of the tissue. The germ here is the *oidium albicans*, the evidence of squalor and human rot, and for their destruction and repair, we need powerful germicides and remedies to reconstruct shattered vital force.

Locally, charcoal, yeast, wild indigo, and carbolic acid in poultices, with washes of boroglyceride. Internally, best of diet, quinine, kephaline, ozone-water, country air, etc.

DISEASES OF THE LIVER, PANCREAS, AND SPLEEN.

ACUTE INFLAMMATION OF LIVER.

Hepatitis.—Partial death of the liver may result from some obstruction through the hepatic and portal veins, as occurs in some forms of valvular disease of the heart, or morbid state of lungs, impeding the passage of blood through the pulmonary artery; or in diseases that diminish the capacity of the thoracic cavity; or from violent exercise, or tight lacing; conditions that lead to diminished excretion of bile, so that the ducts become engorged with it, and thus cause *biliary congestion*.

Suppose this condition to progress, the patient receiving some mechanical shock over the liver, or that some diseased germs in the blood took up their abode there, or that it was subjected to the influence of solar heat, malaria, or to some depressing passion or other nervous influence, or excessive eating and drinking of carbonaceous food, as fat, sugar, starch, alcohol, with sedentary habits, a state of *active congestion* will set in; other conditions might be enumerated, as the action of mercury, which produces atony of the walls of the vessels of the liver.

From these remarks it will be readily seen that the causes of acute inflammation of the liver are varied and numerous, embracing mechanical irritation, obstruction from morbid changes, heat, malaria and other germs, carbonaceous food, drugs, mental depression; in other words, anything that tends to devitalize.

Symptoms.—General symptoms of languor, lassitude, debility, mental depression, loss of appetite or dyspepsia, tongue coated heavy brown coat, skin jaundiced, yellow conjunctiva, bowels constipated or irregular, a sense of constriction and weight over liver at first, it greatly enlarges from congestion, and the area of hepatic dullness increases; liver extends below the ribs and across the hypogastrium; headache, pain in back, calves of legs, rigors, followed by high fever, which sometimes

assumes a low type; pain over region of liver, aggravated by pressure; cough, deep inspirations, inability to lie on left side; the coat on tongue becomes heavier, conjunctiva tinged with bile; there is nausea, vomiting, cough, difficulty of breathing, hiccough, pain in right shoulder and clavicle; if the left lobe of liver suffers there may be pain in the left shoulder, dullness of the upper lobe of left lung; urine is always scanty, high colored, loaded with bile pigment and traces of albumen. The variation and intensity of symptoms will depend a good deal as to whether the peritoneal investment or substance of the gland suffers most. Most generally it is the substance of the gland that is affected.

If the inflammation or partial death is great it may lead in a short time to extravasation of blood into the hepatic tissue, or beneath the capsule, the result of great congestion, as takes place in bilious, malignant, remittent, or yellow fever. The extravasation may be from the size of a pea to that of a duck egg; in some cases the blood is infiltrated through its entire substance, converting the tissue into a pulpy mass. In less severe cases, even with the morbid action diffused through the entire organ, effusion of lymph may take place, which may lead to induration, with atrophy or enlargement, and ultimately softening or abscess.

The formation of abscess is ushered in with distinct chills after the inflammatory stage has proceeded some time, with hectic fever, great disturbance of the stomach, with extreme pain and tenderness over both liver and stomach and abdominal walls; feeling of weight about the liver, emaciation, prostration, diarrhoea or dysentery.

Treatment.—Inculcate the general principles of treatment for fever, complete rest in bed, sponging the entire body three times daily with some aqua ammonia and tepid water, drying and rubbing well, and then sponging with nitromuriatic acid water, heat to feet; first apply a large mustard plaster over region of liver and stomach, and as soon as erythema or redness is produced, paint over the inflamed part with croton oil, and over that a hot flaxseed-meal poultice; change poultices every three hours. As the stomach is irritable, lime-water and milk; control fever with very large doses of the tincture of green root of gelsemium with veratrum and aconite; as soon as pulse is about 70 leave veratrum and aconite out, and hold on to gelsemium; as soon as stomach will contain drink, oatmeal-gruel and phosphate of soda, and six-drop doses of nitromuriatic acid in water every three hours. If stomach is persistently irritable use small quantities of ipecac and morphia; if there is dysentery give one or two large doses of quinine, and to render the stomach more tolerant add about a

grain of pulverized opium to the dose; get control of the more acute symptoms, and never mind diet, and even when given it must be greatly restricted. If there is constipation, enemata, or a small dose of compound licorice powder, or a drink of the acid tartrate of potash.

Great care and good discrimination are necessary in the selection of the proper remedy and dose.

If case progresses favorably, establish convalescence upon compound tincture cinchona and nitromuriatic acid, fluid extract of chionanthus virg., and nux, or leptandra and salines.

If Suppuration take place, support the powers of life with most nutritious food, cinchona and mineral acids, quinine; poultice assiduously. The peritoneal coat of liver becomes adherent to the abdominal wall at points, and, as a general rule, it is best to let it burst spontaneously; they do better than those that are punched by grooved needles, or trocar and canula, or even the aspirator.

CHRONIC INFLAMMATION OF THE LIVER.

Chronic inflammation of the liver may be a sequel of either active or passive congestion; it may present itself with either hypertrophy or atrophy, but in either case indurated or hard. Various names have been applied to it, as indurated liver, interstitial hepatitis, granular liver, gin-drinker's liver, hob-nailed liver, from the fact that the capsule of the gland is drawn in here and there over it, owing to contraction of thickened connective tissue, giving it the appearance of hob-nailed; and some call it cirrhotic liver, because on slicing it after death, it presents the grayish yellow color of impure beeswax. The term chronic inflammation is the best.

Causes.—Solar heat, malarial germs, carbonaceous food, disease of heart, lungs, etc.; mental depression, articles of dress, as tight lacing, violent muscular exercise, use of mercury, whisky or beer, which retards its function, and excites irritation directly in its substance; impure air, inattention to bowels and skin, want of exercise.

Symptoms.—There is a general lethargy of the entire body; skin is sallow—in rare cases slightly jaundiced; the white of the eye tinged with bile; tongue coated with white and brown coat; breath fetid; copper taste in mouth; usually constipation and clay-colored stools; urine scanty, high-colored, with bile pigment and traces of albumen; skin is dry and harsh, burning in hands and feet; often sweaty feet, with pungent odors; sebaceous glands of nose, axilla, groin, active, giving those parts a greasy feel; skin not only sallow, but assumes an unhealthy look. After disease has lasted some time, dyspepsia, flatulence, constipation, with feverishness by spells and headache. There

may be nausea or loathing of food—a sense of constriction and weight over liver; there is an increase or decrease in size, usually the former, from effused lymph in its interstitial structure. This lymph blocks up, interferes with the flow of portal blood and escape of bile. In enlargement, area of dullness greatly increased; if it contracts and lobules atrophy, the gland diminishes in size; piles, enlargement of spleen, pain, perhaps, over region of liver; if not, then it will be experienced in right shoulder and clavicle. Passive congestion of the upper lobe of right lung, and dullness on percussion; irritative cough. As the case progresses, symptoms become more aggravated, and debility, with loss of flesh, takes place. An increasing contraction or obstruction from effused lymph takes place, and damms back portal circulation, and ascites supervenes. Jaundice is now decided; dilatation of the veins of abdominal walls; hæmorrhage from nose, stomach and bowels often present; indeed, a bleeding from nose and stomach might be an early symptom, and often occurs before the disease is suspected.

After the disease has lasted from a few months to more generally ten or twenty years, the debility and anæmia become great, dropsical effusions in the abdomen and limbs increase, and death takes place either from exhaustion or some complication, as pneumonia, peritonitis, jaundice, toxæmia, diarrhœa.

Treatment.—Medical statistics exhibit the fact that nearly two-thirds of our entire population, young and old, men and women, are affected with chronic inflammation of the liver. Now, this is due in a very great measure to our hot, or tropical climate, malarial atmosphere, excessive struggle or brain work, whisky and beer-drinking, hog-eating, starchy and saccharine feeding, tobacco-chewing, mercurial drugging. Our first aim in a cure, therefore, consists in discarding all these agents; forbid mental anxiety, a total disuse of fat, sugar, starch, whisky or beer, tobacco, mercury, etc.; and besides, tea, curry and all high-seasoned dishes. Plain animal food, milk, eggs, white-fish, fruit, and vegetables; daily bathing, flannel clothing, open-air exercising, horse-back exercise; well ventilated apartments; bowels to be opened once or twice daily; irritating plaster to be worn pretty steadily over liver; an alternative and tonic course inculcated; such alteratives as *saxifragica*, *tag alder*, *alums*, *comfrey*, *dulcamara*, *elecampane*, *blue flag*, *leptandra*, *podophyllin*, *stillingea*, *iodide of potassa*, and *iodide of sodium*; and as tonics, *cinchona*, *mineral acids*, *hydrastis*, *columbo*, *collinsonia*. Besides general alteratives, all bearing upon the liver, stimulating a renewal of life in that gland, the tonics should be selected with the same view, the alteratives administered two hours after meals, and the tonics half an hour before—both freely diluted with water, and changed weekly.

Digestion should be looked to, and gentian and pepsin and other remedies to strengthen the stomach. The special remedies that stimulate the liver, break down and absorb lymph, can usually be run in either in the alterative or tonic form, such as

Phosphate of Soda: Used in all articles of diet instead of common salt, is invaluable in promoting a free flow of liquid bile; it should never be omitted in treatment.

Nitromuriatic Acid: One of the very best of liver stimulants, in six-drop doses in compound tincture cinchona; used for about a week, discontinued for a few days, and then re-commenced; its action on the connective tissue of the liver is invaluable.

Sulphur: Always and persistently from one form to another; an invaluable liver stimulant.

Chionanthus Virg., or fringe tree, is superior to all vegetable liver stimulants; much superior to mandrake, blue flag, leptandra, taraxacum; very mild in its action. *Phytolacca* is an admirable cholagogue in small doses.

Nux vomica is not to be discarded. Iodide potassa, ozonized glycerine, ozone-water, should be given all through the case.

In addition to the special treatment for rousing up the liver with special remedies, I have found the use of the white mustard seeds of great value in doses of from one to two teaspoonfuls of the seeds whole—never pulverized—in a little water or mucilage one hour before each meal. It is an invaluable remedy when the liver and stomach are sluggish—when there is great debility, loss of appetite, failure to sleep, depression of the nerves. The mustard seed gives new life to the liver; promotes a good biliary secretion. In that form of chronic inflammation of liver due to the use of whisky, and when the stomach coats are pretty well eaten, it can be used with splendid success. In the malarial form its action is beyond description. Its use should be continued for six or more months after recovery has taken place.

Kurchicine is another remedy of inestimable value in the chronic inflammation of liver due to heat, malaria, and carbonaceous food or drink. It is extensively used for those terrible forms of bilious fevers so common in the swamps of Hindostan.

When *Degeneration of Hepatic Cells* is suspected, iodoform ointment instead of irritating plaster, ozonized glycerine and water, nitromuriatic acid; and if stubborn, apply ozonized clay.

If there is *Hæmorrhage*, the sulphuric acid and turpentine mixture, gallic acid.

For *Ascites*, general treatment for dropsy—digitalis, squills, pilocarpin, diaphoretics, diuretics, etc. See *Dropsy*.

SYPHILITIC HEPATITIS.

This is not confined to any particular stage of syphilis. Let the germ enter the body of a person with a weak or devitalized liver, the first thing we often observe is syphilitic hepatitis. As a rule, the syphilitic germ does not manifest any special preference for the liver, like the skin or mucous membrane; it does not seem to be a pleasant or congenial pasture-field. When it takes that organ for its abode, it colonizes in three forms: (1) germs generally diffused through interstitial structure; (2) a large congregation of germs, colonies varying in size from a linseed to a bean; (3) in large irregular patches.

Symptoms.—Sometimes there are all the indications of chronic inflammation of the liver; in other cases, there are few, if any, symptoms present but jaundice, a coppered-colored appearance of mucous membrane, with other marks of syphilitic cachexia, enlargement of spleen and albuminuria.

Treatment.—General treatment for syphilis, keeping bowels open, and using alkaline baths, nourishing food, rest from bodily and mental work, country air, etc., and treatment for chronic inflammation of liver.

DISEASE OF THE BLOODVESSELS OF THE LIVER.

The hepatic artery and its branches may be involved in chronic inflammation, deposit of the germs of cancer, syphilis, and tubercule; the canal of the artery may be obstructed, or there may be degeneration of its coats, or it may be dilated into aneurismal sacs.

Portal vein may have its channel obstructed by coagula; sometimes ruptured from fatty or calcareous degeneration of its coats, inflammation, ulceration or suppuration of viscera, in which the roots of this vein have their origin, may produce suppurative disease of the vein itself.

Symptoms.—Headache, rigors, violent fever, great prostration, profuse sweats, pain in the stomach and over the region of the liver, jaundice, bilious diarrhœa, or enlargement of liver and spleen, followed by peritonitis or purulent deposits in joints, lungs and glands, terminating in fatal exhaustion or coma. Remedies of no avail; mitigate suffering, and support the failing powers. Hepatic veins are found enlarged after death in all cases of valvular disease of the heart; rarely the seat of inflammation.

Inflammation of Gall-Bladder.—The gall-bladder and biliary ducts may suffer from inflammation from a variety of causes, as congestive chills, mechanical irritation, as dress, drugs, alcohol, beer, etc., morbid state of the stomach and bowels. It is apt to assume one or other of three forms. (1). *Catarrhal*, in which the internal lining membrane of the ducts throw out a secre-

tion of mucus or muco-purulent matter; the cyst liable to be blocked up with such mucus. (2). *Plastic exudation*, in which the passages or tubes are blocked up by plastic lymph, which leads to dilatation. (3). *Suppurative inflammation*, usually due to the presence of gall-stones, hardened bile, and gives rise to ulceration in a variety of forms.

These three states may exist all over the net-work of hepatic vessels, although they are more commonly met with at the termination of the excretory duct of the liver and gall-bladder.

Symptoms.—These are very variable, but embrace the principal or leading features of chronic inflammation of the liver. Still, as the gall-bladder, cystic and common ducts are more obnoxious to inflammation than the hepatic ducts, as the former are more likely to be irritated by gall-stones and pieces of dried or hardened bile, the difficulty can be appreciated by a localized irritation over the seat of those ducts, as well as by tenderness over the part, or sense of tightness or constriction over the stomach and liver; nausea, constipation and jaundice, due to absorption of bile; pain in shoulder, fever, headache, etc.

Treatment.—Very much the same as for chronic inflammation of liver, same diet, baths, and other remedies, watching the case carefully, using no drastic cathartics.

DEGENERATION OF THE LIVER.

There is an inherent tendency in a liver that has, or is suffering congestion, active or passive, or acute and chronic inflammation, or a partial death from any cause, to undergo degeneration; that is, for its proper structure to waste, or to increase in size, or to be usurped by fat, starch, or coloring matter. The cachexia or diathesis has a modifying influence.

(1.) **Amyloid or Starchy Degeneration.**—Waxy, lardaceous, or albuminous liver is a common termination of chronic inflammation in a tubercular patient, still it might co-exist with a fatty liver. The glandular structure is gradually converted into dense material; first thickening from effused lymph, which chokes up the minute vessels, lobules, and hepatic cells, with abolition of their functions, and a usurpation by real vegetable starch, or starch-like matter. The change begins in the muscular fibre-cells of the middle coats of the small arteries, and the deposit continues till it takes the place of the lymph effused, and invades the proper structure of the organ, rendering it incapable of performing its proper function. After death the liver is increased in weight if not in size, from three or four pounds to eight or nine pounds, or more; substance firm and glistening, or cutting it it resembles yellow wax; cut surface often presents starch granules; all traces of lobules obliterated; iodine or sulphuric acid stain it blue or black. The predisposing

cause is the tubercular or syphilitic cachexia; if this condition does not exist it can be acquired, the former by irritation in the body, as caries, chronic disease, fevers, the latter by contact in some way; chronic irritation of liver exciting cause.

Symptoms.—Starchy degeneration of liver does not exist without the same condition in spleen and kidneys, consequently, the patient assumes acachectic, broken-down appearance; loses strength and flesh rapidly, and is anæmic. The enlarged liver is usually almost as hard as a brick. Symptoms of chronic inflammation may or may not exist, usually do, however, to some extent. There is a sense of weight and fullness in right side; spleen enlarged and hard; loss of appetite, indigestion, nausea, or loathing, flatulence, occasional attacks of diarrhœa, with pale stools. With the anæmia there is a peculiar sallow pallor; albumen in the urine; very rarely any acute pain. Jaundice may be light or quite heavy; ascites and dropsy of lower extremities. The disease, with much care, may be retarded, but, as a rule, it progresses on to a fatal termination.

If it exists alone, without tubercle, syphilis or some disease of bones, or pulmonary phthisis, it may be considered more hopeful. For treatment, see *Chronic Inflammation and Fatty Liver*.

(2.) Fatty Degeneration.—This condition of the liver usually follows chronic inflammation from the use of whisky or beer, although it is found as a sequel from malarial poisoning, as in yellow fever and syphilis.

It must be clearly understood that in speaking of fatty metamorphosis, that there is no connection between the tendency to form fat around an organ, or the production of obesity and the change or usurpation of the normal tissue of an organ into fat. Obesity, if within proper limits, may be preservative; whereas the usurpation of the tissue of a gland by fat is to be recognized as a process of decay or death from a defect in nutritive function. The cause of this retrogression is disease, old age, inactivity, and, above all, alcohol, which retards, degrades normal metamorphosis, blights tissue-forming, and aids directly in this fatty change. In whisky or beer-drinking there is besides a great quantity of oil naturally retained in the hepatic cells; so that on a close examination, the latter are found gorged with oil globules, diminishing the normal granular matter, and quite obscuring the nucleated nuclei. Liver is large, pale, smooth, greasy—often burning like fat; heart, lungs, brain, kidneys, uterus, muscles, arteries, as well as liver, may suffer from it. Atheroma of arterial walls, and the arcus senilis of the cornea, is simply fatty degeneration. It may in rare cases be found in phthisis, but if proper search be made, fatty liver is the true evidence of whisky-drinking, with high living and lethargy.

Symptoms.—All the leading features of chronic inflammation of liver are present, together with a sense of weight or oppression about the liver, with marked anæmia and prostration. There is usually gastric catarrh, dyspepsia, constipation, alternating with diarrhœa, pasty-looking complexion hæmorrhoids; usually enlargement, ascites, swelling of extremities, acholia, or fatal prostration.

Treatment.—The diet to be most nutritious; an avoidance of fat, sugar, starch, whisky; bowels to be regulated; skin stimulated by daily bathing and flannel clothing; irritating plaster to be worn over liver; moderate but gentle exercise; a persistent course of alteratives and tonics, and same remedies as for chronic inflammation of liver.

(3.) **Pigment Liver.**—After death in yellow fever, malignant, bilious, intermittent and remittent fever, the liver is often found to be of a black or chocolate color, due to a pigment in the vascular structure of the gland. The loading of black or melanotic matter in the capillaries of the liver tends to their destruction and wasting of the liver. There is usually gastric catarrh, diarrhœa, cerebral irritation, and ascites.

So far, it is not amenable to any treatment.

ATROPHY OF THE LIVER.

In chronic inflammation, with effusion of lymph, the tendency is to enlargement of the liver; still, when amyloid and fatty degeneration follows, it is no unusual thing for the liver to shrink and become small, but it remains hard. These belong to liver degeneration proper, but there are two varieties of atrophy that take place without the elements of fatty or starchy degeneration. Thus, for example, we have often cases of

(1.) **Acute Atrophy of Liver**, or, as some term it, yellow, acute, wasting of liver, or softening and breaking down of that gland. It is one of the most remarkable and fatal affections of the liver, and consists in a complete destruction of the hepatic cells through the entire gland.

Causes.—Those are alleged to be nervous depression, as grief and anxiety, fright, passion, venereal excesses, syphilis, excessive whisky-drinking in an habitual drunkard, or otherwise, the germs of malaria and bacteria, poisons of mercury and phosphorus

Symptoms.—*Preliminary Stage:* May last some weeks or months, and is characterized by general depression, headache, loss of appetite, thirst, drowsiness, violent palpitation of heart, mental and physical prostration, irregularity of bowels, tenderness of abdomen, some bloating; tongue may be clean, but conjunctiva becomes tinged with bile, and skin slightly jaundiced, after a while.

Confirmed Stage.—This sets in and resembles yellow fever; there is jaundice, with petechia and large ecchymosis, or purple patches; nausea, vomiting, first of slimy products; then of matter like coffee grounds, which is blood altered by the acids of the stomach. The tongue now, as well as teeth and gums, is coated with black sordes; there is great irritability, profound despondency; soon followed by wandering or low-muttering delirium; convulsions, stupor and deep coma; pain is often quite severe over both stomach and liver; the area of dullness is so greatly diminished, that the liver can be scarcely felt; obstinate constipation; purgatives bring away hard, clay-colored stools; later the passages are black from containing blood; difficult micturition; urine loaded with bile pigment and albumen; increase of jaundice; hæmorrhages from nose; stomach, bowels, bronchi; usually bed sores. Its duration in this stage is seldom over a week.

Treatment is of no utility. Try same treatment as for acute inflammation of liver, with large doses of quinine and mineral acids.

(2.) **Chronic Atrophy of Liver** has no connection or resemblance to acute atrophy, but seems to depend on inflammation of a low grade, with obstruction and arrest of capillary circulation and defective nutrition.

Symptoms likely to come on slowly and insidiously, taking years to develop, exhibiting, first, chronic inflammation of liver; then shows a shrinkage; digestion becomes more imperfect; flatulence, constipation, alternating with diarrhœa; pale, clay-colored stools; very dry and sallow skin; loss of flesh and strength, with anæmia and persistent wasting; general dropsy and exhaustion.

Treatment same as chronic inflammation of liver, with very nourishing food, warm clothing; guard against over-fatigue, and depend on general vegetable alteratives and tonics.

HYPERTROPHY OF LIVER.

There are a variety of forms of enlarged liver; it may be increased in size and weight in chronic inflammation, with effusion of lymph in fatty or starchy degeneration, and from the presence of tumors, but those are not conditions of true enlargement.

Hypertrophy of the liver proper is characterized by an increase in the size as well as the number of the secreting cells, causing general enlargement of the gland. It is usually the result of long-continued congestion, such as takes place in all tropical climates from the irritation of malaria and whisky. It may be looked for in indurated spleen, or leucocythæmia, in or after dysentery, and very common in the glucose diathesis, or

diabetes. It is often met with in a lobe or portion of the liver. It is then said to be partial. It is brought about by the healthy portion having to do the work of a portion diseased; its cells become enlarged, new ones are developed, and in this way the developed part compensates for that which is diseased. It gives rise to gastric catarrh, etc. Treatment same as for chronic inflammation.

TUMORS IN LIVER.

Besides the usurpation of the proper structure of the liver by fat, starch, and excessive interstitial development, the gland is liable to be the seat of new formations, mostly originating in the substance of the liver.

The following may be enumerated as a few of these growths:

(1.) **Cystic Tumors.**—Encysted, knotty tumors, containing a cheese-like substance are found in the glandular substance, varying in size from a pea to that of a hen's egg. They arise from irritation and inflammation of the hepatic ducts; steatomatous contents composed of irregular granules, free oil globules, and occasionally plates of cholesterine.

Simple Serous Cysts, with clear watery contents, are sometimes found scattered over the liver, usually about the size of a small bean.

Sacculated Cysts, containing a glairy fluid, are also met with. In some cases they resemble a honey-comb. The liver in some cases is crowded with such cavities.

(2.) **Calcareous Deposits.**—In nervous dyspepsia, stone in bladder, etc., or rather in the alkaline diathesis, we often meet with deposits of phosphate of lime, varying in size from a grain of barley to a large goose egg. They grow by aggregation of molecules, and, when large, give rise to abscess. In some rare cases they become encysted.

(3.) **Cavernous Tumors** are commonly found in the upper portion of the liver of aged persons. They are developed in the hyperthrophied connective tissue. On the surface they look like dark blue colored spaces; vary in size from a pea to a large egg. On cutting into them, they are found to be filled with dark blood.

(4.) **Tubercular Deposits** are found in the liver; sometimes a few; in other cases a great number. The deposit takes place, and tubercle grows, but not to large size. It is found albuminous, cheesy and calcareous. In some cases it is associated with fatty deposits.

(5.) **Hydatid Tumors** occur in the liver more frequently than in any other gland, although we meet with them more rarely in the spleen, omentum, muscles of the heart, brain, kidneys, lungs, ovaries, and bones.

A hydatid tumor consists of a sac formed by a condensation of surrounding tissue, lined by a bladder or cyst, which is filled with a limpid salt fluid, floating in which are found numerous small bladders, which contain the entozoa, known as the echinococcus. The echinococcus are the larva, the scolice, or embryo, or immature tape-worm of *tænia echinococcus*, which infests the dog.

Symptoms.—As hydatid tumors grow very slow, and give rise to little irritation or inconvenience beyond a sense of weight and symptoms of chronic inflammation of the liver, when the volume of the liver is greatly increased and the tumors large, they can often be detected either by a sense of fluctuation, or by a peculiar vibratory thrill or sensation called the hydatid fremitus. If the cyst inflame there may be violent pains, active symptoms of inflammation of the liver, with ascites and œdema of legs. Its duration may extend over a period of many years, and either one or other of the following events may take place: In favorable cases the fluid in the cyst may be absorbed, walls of cyst contract or collapse, no rupture take place, and its seat be filled, or thick, putty-like substance, and perfect recovery. Another very favorable termination, but not so good as the former, is for adhesions to form between peritoneal coat of liver and walls of abdomen, or peritoneal coat of bowel, and the tumors to burst, either externally or into the bowel. In other cases it may burst into hepatic duct, whence contents may pass into duodenum. The most unfavorable condition is for the cyst to burst into the abdomen, causing fatal peritonitis and death.

Treatment.—As soon as a hepatic tumor is made out, the general treatment for chronic inflammation of the liver should be very rigidly carried out; vegetable alteratives and tonics, embracing iodide of potass, or ozonized glycerine and ozone-water as special remedies. The ozonized clay should be kept applied over region of the liver; if it causes redness poultice till it disappears, and then re-apply the clay. The clay has a marked, decided action in amyloid, fatty degeneration, and all tumors of the liver; its use forms a new era of most successful treatment; it has a wonderful efficacy in renovating this important gland, and its efficacy in large hydatids is astonishing indeed; it has superseded electrolysis; removal by aspirator; injections; tapping, and other dangerous remedies.

CANCER OF THE LIVER.

Usually, either medullary or scirrhus, easily recognized by the cachexia, the pain, anterior, and posterior, and other indications of malignant disease; besides all the symptoms of chronic inflammation, enlargement of the liver, loss of form,

uneven, bulging prominences; nodular mass gives rise to peritonitis. The daily loss of flesh and strength is appreciable; dyspepsia, great mental prostration, jaundice, ascites; often formation of gall-stones.

Its duration is short.

Same treatment as for cancer, with steady application of ozonized clay over region of the liver.

GALL-STONES.

Biliary calculi are generally found in the gall-bladder, more rarely in the liver, and in branches of hepatic duct.

The principal ingredients of gall-stones are cholesterin, cholochrome, or coloring matter; earthy and alkaline salts, such as phosphate and carbonate of lime and magnesia, together with biliary and fatty acids. They are found large and small, solitary and multitudinous. Solitary calculi, when found in the gall-bladder, are globular, or oval, or pear-shaped; associated stones usually have numerous polished facets, the result of pressure and mutual attrition. Gall-stones found in the hepatic duct, or its branches, are small, rough, or tuberculated, and of a very dark color. Gritty, sand-like deposits are met with in the excretory passages of the liver, consisting of minute calculi, or of a powder formed of cholesterine and colochrome, biliary gravel.

Causes.—Anything that interferes with or retards the functional activity of liver, as solar heat, malaria, alcohol, tobacco; or prevents a due decarbonization of blood by lungs and skin, as sedentary habits, tight lacing, want of exercise, isolation, sameness of life and diet, or monotony, or any morbid condition of the liver; anything that can be imagined that will cause a coagulation or crystallization of the chemical elements of the bile.

Symptoms.—Are very variable, depending upon the location of the stone, and its size. In branches of the hepatic duct small calculi may give rise to dull pains about the liver, shooting to the shoulder; to symptoms of intermittent fever; gastric disturbance, with nausea. As they usually only cause temporary obstruction to a free flow of bile, there is no jaundice.

The hepatic duct is rarely blocked up with a concretion; if it is, it will give rise to intermittent pains, attacks of vomiting, jaundice, enlargement of liver, owing to the escape of bile from all the ducts being prevented. Danger of rupture of duct-stones may be present in the gall-bladder without producing any morbid derangement, for they rarely set up catarrhal or plastic inflammation; still there is likely to exist copper taste in mouth, fetor of breath, brown coat on tongue, yellow tinge of the white of the eye; pain in back of head, and over the region of

liver, right shoulder and hip; loss of appetite; indigestion, constipation.

If a calculi of any size leave the gall-bladder and enter the cystic duct, then we have well-marked symptoms. A sudden seizure of intense, excruciating pain in the region of the gall-bladder, which moves along a tract, followed by nausea and vomiting; less or more pain over the entire liver and shoulder; pain over gall-bladder is not constant, comes and goes; rigors, prostration, with feeble pulse and clammy skin; nausea and vomiting become aggravated; paroxysms become so severe that patient bends herself double, pressing hands firmly against the pit of the stomach; one paroxysm following another, when, all on a sudden, the stone drops into the duodenum; there is instant relief; constipation. If the stone is large enough to fill the duct, jaundice must take place; the gall-bladder becomes greatly distended, and liver progressively enlarges, and ultimately death may take place from perforation. Still nature is wonderfully provident of herself, and the stone or stones are more likely to ulcerate their way into the bowels, or through the abdominal walls.

Treatment.—If patient is seen during the passage of the stone, the patient suffering attacks of excruciating pain, his or her suffering must, if possible, be relieved. Tincture of green root gelseminum, with opium, should first be tried, with either a hot bath, or hot fomentations, over liver and abdomen. If that is not successful, let the patient inhale a very small amount of chloroform, and just when it is about to act, introduce a subcutaneous injection of morphia, and discontinue the chloroform; then keep on with hot fomentations and gelseminum to relax the duct; and if the stomach will tolerate it, give large doses of olive oil; if it is rejected, use copious draughts of hot water, with bicarbonate of potassa. As soon as stone is passed, there is relief. Then the point to be aimed at is to dissolve others that may be in the gall-bladder, and prevent new formations. For this purpose, change of diet, habits, exercise, alkaline bathing, should be recommended, and all causes removed. Ozonized clay over liver is invaluable. A selection of some of the following remedies should be tried, to prevent the formation, and cause the disintegration of such calculi:

Nitromuriatic Acid: Not only a liver stimulant, but excellent solvent. Administer in compound tincture cinchona, in six-drop doses, thrice daily.

Phosphate of Soda prevents formations, and has disintegrating properties. In this respect, any alkali, as preparations of soda, potassa, ammonia, are of utility.

Olive Oil seems to possess powers of dissolution, besides aiding their easy passage.

Ozone-water, sulphur-water, iodine-water, rank next to nitro-muriatic acid. Podophyllum, leptandra, chionanthus, nux vomica, taraxacum, are of little utility, unless combined with bitartrate of soda, or nitrate of potassa; then they are very efficacious, as four grains of nitre of potassa, to half a teaspoonful of cream of tartar, in an infusion of either dandelion or wahoo.

Friction, shampooing, manipulation of all kinds, very hurtful, and neither aid in the non-formation of stones, nor in their expulsion.

The entire regime of the patient should be altered: daily bathing; keeping bowels open; a non-carbonaceous diet; no sugar, fat, alcohol, or beer; exercise in open air, and change. Inculcate strongly into the patient, that in order to enjoy the highest degree of health, that change in all things is indispensable—nothing so deteriorating to the vital integrity of man as monotony, sameness, isolation. To ladies, gall-stones are an especial scourge, which is not to be attributed to their monotonous life so much as to tight-lacing, which strangulates the liver, displaces the gland, and is sadly productive of gall-stones; let her remove the cause.

JAUNDICE.

This is always to be regarded as a symptom of disease of the liver, never a morbid condition of its own. It may, therefore, be regarded as a symptom of congestion, inflammation, irritation from poisons, degeneration, tumors, gall-stones or acute or chronic atrophy, yellow fever and mental excitement. All forms of jaundice may therefore be classed under two heads: (1.) Those in which the functions of the liver are suppressed or won't work, and the coloring matter of bile and cholesterine accumulates in the blood. (2.) When the liver works, perhaps well, bile is secreted in abundance, but cannot get away; there is an obstruction to its exit in the duodenum by gall-stones, or by pressure, or something, and the bile is re-absorbed into the blood. This condition cannot last very long without the liver ceasing to work, for the bile, being dammed back on the gland, becomes a poison to its own structure. If due to disease of liver, there will be oppression, pain, over liver; if due to gall-stones, there will be the nausea and paroxysms of severe pains.

Symptoms.—Jaundice, then, a symptom of liver disorder, disease or depression, is characterized by yellowness of skin and conjunctiva, nausea, loathing of food, especially fatty substances, tongue coated brown, usually constipation; stools, if any, pale or clay, or white colored; urine very scanty, and of a saffron color, or dark mahogany color, according to the amount of bile pigment present. Drowsiness, giddiness and

peevisishness, dyspepsia, bitter or copper taste in mouth, slow pulse, weakness or exhaustion; itching in the skin. In very severe cases the aqueous and vitreous humor of the eye is so heavily tinged with bile that the patient sees everything yellow; very drowsy.

If it is severe and allowed to last long there may be stupor, delirium, and great cerebral disturbance; extreme weakness from mal-nutrition; there may be hæmorrhage into the skin, profuse bleeding from nose, gums, stomach or bowels.

The Treatment, in all cases, will consist in a gentle emetic of mustard and salt, opening the bowels with salines, as the mixture of salts; daily baths; diet to consist of milk, raw eggs, white-fish boiled, or oat-meal, and an abundance of ripe or cooked fruit; the ozonized clay over liver steady; then select two of the following, and administer alternately at intervals apart, highly diluted in water.

Nitromuriatic acid, in bark; phosphate of soda in some drink; sulphur, in any form, is indispensable; and any of the vegetable chologagues, as podophyllum, leptandra, euonymus, chionanthus, kurchicine.

Whichever is selected must be given with either cream of tartar or nitrate of potassa. If there is any syphilitic taint, iodide of potass is indispensable.

In order to test the patient's urine for bile, pour a small quantity out in a stoneware plate, then add chemically pure nitric acid, drop by drop; there may be at first a play of colors—green, blue, red, or sometimes only greenish—which alone shows or indicates bile pigment.

ACHOLIA.

A perfect arrest of the functions of the liver, so that matters from which bile is formed accumulate in the blood, producing toxæmia.

Acholia may take place during the progress of almost any disease of the liver, but almost an invariable attendant in acute atrophy. A very remarkable disease, in which there is a destruction of the hepatic cells, and rapid wasting of the gland.

Acute atrophy of the liver evidently depends on impaired nutrition, and may be caused by great mental and physical prostration, venereal excesses, use of mercury, whisky, malaria. Still, no very satisfactory reason can be assigned why those agents should cause one-third, or one-half, or two-thirds of the liver to waste and disappear in a few days—a gland so very rich in blood—and without any change in the bloodvessels themselves. No other disease bears any analogy to it.

In chronic alcoholism, where it is most common, we can

see a poison that acts directly upon the hepatic cells ; the others are difficult to trace.

Next to alcohol, the action of the germs of syphilis and cancer have a tendency to destroy the glandular epithelium, and thus lead to an arrest of function. More rarely is acholia due to chronic inflammation, fatty and starchy degeneration, producing an impermeable state of the ductus communis, choledochus of the hepatic duct, to an arrest of capillary circulation.

An effort at treatment must be made—the ozonized clay applied over liver ; the use of the various remedies already recommended in chronic inflammation.

DIABETES, MELITUS.

Mellituria, or grape sugar in the blood, or, as it is often termed, saccharine diabetes, is a complicated chronic disease, characterized by the presence of glucose or grape sugar in the blood and fluids of the body. It seems either to originate in the brain, at the origin of the eighth pair, in the floor of the fourth ventricle, between the auditory and pneumogastric nerve, or in the periphery of those nerves in the stomach, pancreas and liver. If we prick the mesial line in the floor of the fourth ventricle, in the centre of the space between the origin of the auditory and pneumogastric nerves, we produce an exaggeration of the hepatic secretion, an excessive elaboration of sugar, and an augmentation in the quantity of urine, which is not only superabundant, but loaded with saccharine matter. Or, again, if the periphery is irritated in stomach, pancreas, liver, and the centre weakened to receive the irritation, the same result follows. In this condition the portion of the visceral brain, great sympathetic, over stomach, liver, and lower lobe of right lung, is equally affected. The origin of the glucose diathesis, or melituria, is to be found in some enfeebled condition of the co-ordinating chemical centre, or in its periphery.

Causes.—Shocks, falls, blows, concussions, overwork, struggle for existence, worry, mental anxiety, depressing passions, as grief ; exposure to sun, or vicissitudes of climate ; disease of stomach, pancreas, liver, as gastric or duodenal catarrh, alcohol. Occasional attacks, due to drugs or inhalation of chloroform, whisky, are simply passive conditions.

Symptoms.—Come on slowly and insidiously, with great muscular and nervous debility ; immense amount of urine voided, of an apple odor, and usually of a high specific gravity of from 1035 to 1060. Still cases are often met with where it is lower ; skin is very dry and harsh ; obstinate constipation, gradual failure of strength and loss of sexual power ;

pain in loins; extreme prostration; coldness of extremities, with sense of burning in hands and feet. Debility increases, weight diminishes, body shrinks, withers; oedema of feet; sometimes albuminuria; breath has a chloroform odor from imperfect combustion of sugar; gums spongy; teeth drop out; mental depression and irritability; constant sense of sinking at pit of stomach; appetite for food voracious; thirst extreme; strong tendency to cataract. After it has lasted months or years, the lower lobe of the right lung, which is so fully covered by branches of the sympathetic, becomes literally invaded with tubercle, colonizing from below and proceeding upward. There may be boils.

The above are the common symptoms, when it originates in the brain, the great co-ordinating chemical centre; but when it starts in gastric intestinal catarrh, from the presence of some poisonous substance or morbid material generated in the intestinal tract, there may be in the early stage localized or paroxysmal pain in the upper part of the abdomen, and vomiting of green-colored matter, exceedingly obstinate constipation, heart affection, cerebral irritation, somnolence, great prostration, febrile spells, in which the pulse is frequent and small, with very rapid breathing, with remarkably deep inspirations, dry tongue, intense thirst, and no elevation of temperature. By-and-by the symptoms coalesce.

The whole train of symptoms point to a nervous origin at the base of brain; even the eye-symptoms can be partially explained. The spinal root of the optic blending with the sympathetic and passing the origin of the eighth pair, in the base of the brain, may receive a pathological effect; at all events, this root brings the retina into direct communion with the co-ordinating chemical centre and the medulla. The existence of this branch is interesting, as it throws light on the physiological relation between the parts affected in diabetes, the medulla and retina, and it constitutes the undiscovered link between certain diseases of the spinal cord and eye.

Besides, the very common termination—tubercular consumption, bronchitis, pneumonia, peritonitis, gangrene—may take place, or the patient die from exhaustion.

To constitute the morbid condition, there must be a persistence of sugar in the urine with the symptoms. This can be readily detected by the potash, copper, or fermentation tests.

It is clearly to be understood that the liver, under this weakened or irritated nerve, can, will secrete, and continue to secrete, sugar, without either sugar or starch being introduced into the stomach. If sugar or starch is taken in, we then are feeding a poison the system cannot get away with. What becomes of the sugar that is taken in, in some cases, even in large quanti-

ties, seeing none of it is ever found in the chyle or portal vein? It must be transformed somewhere, and this transformation is, no doubt, effected in the duodenum by the agency of the pancreatic juice. If the digestion of sugar does take place in that way, and it should happen that the pancreatic secretion was insufficient, from disease of the pancreas itself, from the disturbing and inhibitory influence upon the nerves controlling the secreting function of pathological events, or from the constant injesta of sugar in too large amount, a greater or less quantity of sugar which has escaped transformation must accumulate in the intestines. Of all tissues that keenly absorb sugar, the intestinal tract is the most active, especially the small intestines.

Treatment.—In the general management of the case, daily bathing, flannel clothing, bowels to be opened daily; for great improvement follows the abundant evacuations of extremely offensive and almost black quantities of excremental matter; so, as a rule, empty the bowels daily; for it is not too far-fetched an idea that the sugar has undergone decomposition in the intestines, and aids in producing that terrible burning and thirst so common in diabetes.

The diet is to be highly nutritious, and free from sugar and amylaceous ingredients, for then the pancreatic juice is sufficient to meet the trifling amount of sugar present. How far the pancreatic juice suffices for the transformation of sugar in different cases, it is difficult to say. It is difficult to prepare a diet list entirely free from sugar, for even flesh, yolk of eggs and most acid wines contain sugar; and with regard to vegetables, the stalks and ribs of salad and leafy herbs all contain sugar. In short, with the exception of cheese and sour milk, there is scarcely any edible to be found that does not contain sugar. If, in spite of a diet of flesh, white-fish, game, eggs, beef-tea, cream, cheese, bran-loaf, gluten bread, herbaceous vegetables, the sugar does not disappear, we know that the case is beyond the reach of pancreatic influence, or the patient may not have adhered strictly to the rules. Rigidly forbid sugar, fruit, confectionery, potatoes, carrots, parsnips, beets, turnips, radishes, rice, sago, arrowroot, tapioca, liver, oysters, lobsters, crabs, beer, whisky, coffee. If able, gentle exercise in open air. Two small irritating plasters, an inch square, should be kept constantly applied at the nape of neck; one on each side, and ozonized clay over region of liver. A persistent alterative and tonic course commenced and persevered with; vegetable extracts, with iodine and such tonics as cinchona. The appetite for thirst or food is best removed by administering glycerite of ozone, or dilute phosphoric acid, or glycerite of kaphaline; follow or precede meals with pepsin.

Now, after inculcating the above, our treatment is purely empirical, and confined chiefly to the use of some of the following remedies, the selection in the mind of the practitioner being, in some measure, due to the idea he may entertain as to the pathology of the disease.

Salicylic Acid.—If in diabetes the co-ordinating chemical centre is only weakened to such an extent, that though glucose appears in the blood, aloxan is still formed, and appears in the liver, salicylic acid will combine with it, decompose the glycogen, and so prevent the formation of sugar; but if the centre be further weakened, then the salicylate can no longer decompose the glycogen, and the amount of sugar generated is unaffected by the remedy. So in an old case of diabetes, little benefit is derived from the use of the salicylic acid administered alone, but, combined with caffein, it is still worthy of a trial. It should be given in fair doses, so as to be powerful enough to enter into combination; the antecedents of the glucose causes the entire disappearance of the sugar in the urine. Populin has the same affect.

Antiseptics.—The blood in diabetes is very pink in color—serum milky, white cells abundant, and a large amount of fat granules, supposed to be caused by the sugar assuming the form of a fungus in the blood. Taking this view of the case, *ozonized glycerine* acts very efficaciously in destroying the fungus in the blood; it very promptly arrests the appetite for thirst, brings urine down to normal standard, and patient rapidly improves.

The resonoid of crude petroleum has also a similar effect. Permanganate of potassa, in one-half-grain doses thrice daily, operates like a charm. Balsam of copaiba, either alone or combined in the form of the golden tincture, reduces the sugar and specific gravity to a cipher; chloride of calcium is essentially a remedy of great value.

Again, if the practitioner views the case as an irritation of the visceral brain, he will use opium, white hellebore and quinine often with the very best results—a grain of opium thrice daily.

Nux vomica and poplar bark operate in all cases well. Ergot is of no utility, but useful in profuse diuresis to contract the arterio-capillary vessels, which are often relaxed in disorders of the vaso-motor system.

DISEASE OF THE PANCREAS.

It is rare to find disease of the immaculate pancreas; rare for us to breathe a word of suspicion against this organ, which plays such an important part in secondary digestion; it enjoys a remarkable immunity from disease. The reputation that the pancreas has acquired is well earned, for we can bring

few accusations against it. To some extent, this may result from our inability to make out a morbid state.

Disease does occur here at rare intervals, and in isolated cases, such as congestion, inflammation, hypertrophy, induration, suppuration, and serous softening. There are also cases of atrophy, fatty, cystic or hydatid degeneration, as well as calcareous or phosphatic concretions.

The principal points by which disease of this gland is recognized are debility and emaciation, with the presence of fat in the stools; loss of appetite; inodorous eructuations; brown coat on tongue, with transverse fissures, nausea, vomiting, salivation, mental depression; likely to be some enlargement and tenderness of the gland; fullness or hardness, with a sense of constriction.

Treatment involves general principles: bathing, diet, same as in diabetes; ozonized clay over region of stomach; about an hour after meals, pancreatine. General alteratives and tonics. There are some drugs that act specially on the pancreas, as sulphuric ether, blue flag, ozone-water.

THE SPLEEN.

The spleen is a most important organ, a ductless gland, a perfect store-house of red blood, and possesses a function of holding a large volume of blood when driven in by a chill, and of being a propeller of blood. In this sense it is its own heart, but it is difficult to appreciate this function in its relation to the splenic circulation only. The splenic blood enters the vessels of the liver, and with such force the blood is expelled from that organ much accelerated. The spleen may be regarded as a liver-heart, aiding in its degree—small it may be, yet definite—the difficult movement of the blood through the second series of vessels it has to traverse before it again attains the general circulation. The contractions of the spleen accelerates the movement of the blood corpuscles, between its own interstices and the blood, and thus aids the changes which the blood undergoes when passing through the organ, and affords an explanation for the white cell blood-disease, so common when this gland is blocked up or enlarged.

Disease of the Spleen.—The spleen, like all other glands, is liable to congestion, acute and chronic inflammation, softening, abscess, gangrene, tubercular, amyloid, and malignant disease; fibrous deposits, serous and hydatid cysts, simple enlargement, and enlargement with leucocythæmia.

Enlargement of the spleen, from the presence of the malarial germ in the blood, is very common in tropical climates. It may be a result of acute inflammation, as in yellow fever, or

of chronic irritation in intermittent; besides, the malarial germ has a tendency to cause embolism of the blood.

This hypertrophy of the spleen almost invariably gives rise to white cell disease of the blood. In what manner this store-house of red blood effects this wonderful change in the blood, it is difficult to say.

The symptoms of ague-cake, or indurated spleen, are general debility and loss of flesh. The skin has a peculiar sallow, anæmic appearance; general anæmia; albumen in urine; tendency to hæmorrhage, with the spleen hard and large.

Treatment.—Good, nourishing food, daily bathing, flannel clothing. If there are still indications of the activity of the malarial germ, same treatment as for intermittent fever. The special treatment to get rid of the enlargement is alteratives and tonics, with ozonized clay kept pretty constantly applied over spleen; never causing redness. This remedy operates like a charm.

The iodide of potassium, so long in use, is superseded by the more active remedy, glycerite of ozone. By the use of the clay locally, and the ozone internally, few cases of enlarged spleen fail to make a good recovery in a few months. Besides, there are other drugs that can be used by way of a change, such as the bearsfoot, which has an excellent action internally in the form of fluid extract, beginning with five-drop doses, and increasing every three hours. An ointment made of the bearsfoot, rubbed in or applied, is also beneficial.

If, under this treatment, the enlarged spleen does not yield, we must inculcate a more rigid course of treatment. We must bear in mind that in this enlargement or embolism of the spleen, there are deposited fatty granules, intermixed with pigment or coloring matter; that all through its friable interstices there are millions of bacteria, ever acting on the red blood discs, impairing their embryonic vitality.

This fact, the presence of micro-organisms in the spleen, impairing the elementary molecules, giving us the persistent white cell blood, imperatively calls for antiseptic treatment, as the ozonized extracts of saxifraga and phytolacca, while any good bitter tonic that promotes an appetite and stimulates the liver will be of service.

The ozone water, also, is of great utility, as it enters the circulation undecomposed, and, coming in contact with the germ, annihilates it.

DISEASES OF THE ABDOMEN.

VOMITING AND RETCHING.

Vomiting is due to forcible and repeated contraction of abdominal muscles, the diaphragm being pressed by closure of the glottis; the stomach is thus compressed against the diaphragm, and by this force, together with its own contraction, the pylorus being closed, and the cardiac sphincter relaxed, the gastric contents are expelled upwards. In retching there are fruitless attempts to empty the stomach, the cardiac sphincter being contracted, or the stomach empty.

Nausea, vomiting, and retching, are present as symptoms in many diseases, as in cerebral, spinal, pulmonary, biliary, gastric pancreatic, intestinal, uterine, ovarian disorders. They are often reflex, as in pregnancy, irritation of pneumo-gastric nerve, as in poisons and irritating substances. To disease-germs in blood, as small-pox, scarlatina, yellow fever, ichoræmia, etc. To acute or chronic gastritis or peritonitis. To abdominal aneurisms, tumors, ascites, to invagination of bowels, strangulated hernia, or some latent, morbid state.

When the vomiting is due to some derangement of stomach, liver, and intestines, it is likely to be preceded by nausea, discharge of contents of stomach, biliary matters, offensive secretions, acid matter, pus, blood; tongue usually coated, breath foul, white of eye tinged, abdominal griping pain, fetid, eructations, diarrhoea, unhealthy stools, and the headache is frontal.

When due to some brain difficulty or reflex condition acting on a weakened bulb, there is no nausea, no food, tongue clean, breath sweet or pure, and if there is headache, is mostly behind; no belching of foul gases.

If vomiting and retching is due to disordered stomach, liver, pancreas, bowels.

Lobelia emetic, cleanse out bowels, saline purge, or compound licorice powder, and follow with cinchona and nitromuriatic acid; a bland, simple diet, rest.

If due to diseased germs in fevers, give antiseptics, as ozone-water, carbolic acid, and tincture of iodine, yeast and milk.

If due to inflammation, as in acute gastritis, peritonitis, yellow fever, green root tincture gelsemium and morphia, mustard over

stomach, toast-water in half teaspoonful dose, lime-water and milk, ice in mouth, but spit out fluid as it melts.

If due to cholera germs, ozone-water, camphor, menthol, carbolic acid and iodine, with external warmth.

If due to alcohol, aromatic spirits of ammonia, with infusion of columbo, or kurchicine.

If due to reflex irritation, in pregnancy, try strong cup of coffee before getting out of bed in the morning; oxalate of cerium in five-grain doses thrice daily; infusion of cloves, lemon juice. Drop doses of wine of ipecac, laurel water, sulphurous acid, spirits of chloroform.

If due to hysteria, musk-root, valerian shower baths, cups to loins. If it does not yield, uterine alteratives; food and liquids in small quantity.

Sea-sickness.—A flannel roller around abdomen; a few drops of chloroform in sweetened water; inhalation of from five to eight drops of nitrite of amyl. A one per cent. solution of nitroglycerine in minim doses, repeated; bromohydric acid, carbonic acid gas, as in champagne, effervescing salt; recumbent posture, head to bow of ship.

In some cases a cup of tea and soda biscuit, early rising, keeping centre of vessel, and avoid wine, alcohol.

HICCOUGH.

Hiccup is a short, convulsive, and noisy inspiration, followed immediately by expiration. It is due to the sudden and involuntary and momentary contraction of the diaphragm with the simultaneous narrowing of the glottis.

The cause is either in the brain, at the origin of the pneumogastric and vagus, or at their periphery in the stomach or recurrent branches in the diaphragm. Occurring in brain irritation or disease, it is to be looked upon as one of great danger when dependent on irritation of digestive organs; usually not to be dreaded, but the paroxysms occurring at short intervals, and for days in succession, give rise to pain about the heart, and great exhaustion. Young and old are most liable to attacks. In all cases the treatment should be adapted to the cause; but if no acute or dangerous malady is under way, in a mild case, it can be checked by patient taking a deep inspiration, and then holding the breath as long as possible, so as to keep diaphragm contracted. The wearing of a belt around epigastrium. In other cases it can be checked by snuffs, a good sneeze.

In more severe forms.—Try one of the following remedies by the *smell*, as inhalation of a few drops of chloroform, ether, nitrite of amyl; *by the mouth*, ammonia, musk, camphor, menthol, Indian hemp, aconite, belladonna, nux vomica, chloro-

form, bromohydric acid, hydrocyanic acid; *local*, dry cups, aconite, belladonna and chloroform; liniment to nape of neck, and over diaphragm.

If due to dyspepsia, emetics, bitter tonics, cinchona and ammonia.

If hysterical, sumbul, valerianate of zinc.

If intermittent, iodine and quinine.

If infantile, a few drops of oil of aniseed, winter-green, warm bath; see to the milk.

OBESITY OR CORPULENCY.

The over-accumulation of fat under the integuments and around the viscera constitutes obesity. Although it is essentially a non-vital condition, it is not to be confounded with fatty degeneration.

Causes.—Hereditary tendency, with over-feeding, consumption of large quantities of fluid; indolence, and too much sleep; excessive use of fatty, farinaceous, vegetable and saccharine foods, malt liquors, no care or anxiety. Fat is formed in the body from food containing it, also from the chemical transformation of starch and sugar.

Symptoms.—Besides the increase of weight and bulk, there is an impeded play of various important organs, as lungs and heart; diminution of bodily and mental activity; disturbance of organs of respiration, circulation, and digestion; panting on the slightest exertion; blood is poor in fibrin, deficient in quantity as well as quality; weakness of muscles, countenance bloated and sallow; liability to gouty and neuralgic affections. Obesity not conducive to longevity; sudden death not uncommon. Partial obesity, such as fatty tumors, fat around heart in beer drinkers; fatty omentum or fat belly, in gormandizers.

Treatment.—Bowels to be kept open twice a day; bathing daily in alkaline or acid water; sleep to be restricted to six or seven hours; patient to walk first a mile, then two, or more, daily, until he is lathered over with free perspiration, then stripped in a warm room and rubbed down briskly with aqua ammonia and water, and dry clothes put on. This should be done before breakfast. If circumstances favor, horseback exercise. Diet should consist of meat, white-fish, green vegetables, biscuit or dry toast, tea without sugar; avoid or prohibit as much as possible bread, butter, milk, sugar, beets, potatoes, beans, peas, and broths with coffee. Appetite improved if faulty, with bitter tonics, as gentian, quassia.

Our best remedies to get rid of fat, are fucus vesiculosus, liquor potassa, iodide and bromide of potass.

Fucus Vesiculosus, in fluid extract, in doses ranging from one

to two teaspoonfuls thrice daily in water, regulating the dose so the patient will lose only one pound per week.

Liquor potass, in doses of from ten to thirty drops, as above, in water.

If iodide potass is tried, give it with same quantity of bicarbonate, in infusion of sassafras.

SEA-SICKNESS.

Or *motion sickness*, as it may be termed, for it occurs on lakes, rivers, or other turbulent motions, and by riding backwards is a disturbance of a special sense, whose function is to determine the position of the head of man in space, and to govern and direct the mechanism by which the body is maintained in the erect posture and in equilibrium. This special sense is highly developed in the highly civilized Caucasian, and is his peculiar prerogative; by it the grandeur of the Heavens, the beauties of nature, are realized; by it, man's mind is endowed with divine energy, and he can better appreciate his divine origin. This faculty of equilibrium is connected or seated in the brain, the optic lobes, the nervo-vital fluid or bed-plate of cerebrum and cerebellum, and other parts of the nervous organism, but its principal seat is in the semi-circular canals of the internal ear, which may be called the sense of equilibrium.

Motion produces sickness by disturbing the endo-lymph in those semi-circular canals, the viscera of the abdomen, the bed-plate of brain, or the nervo-vital fluid upon which the brain rests. The motion may be either backward, forward, downward or oscillating, and should be continued for a certain length of time. A combination of these conditions is the most effective, especially if there be an element of irregularity or uncertainty.

There are three varieties or forms of sea-sickness, which can be clearly distinguished from each other, and each of which is susceptible of relief by appropriate treatment. Nausea and vomiting is a prominent feature of all the forms. They may be classed as follows:

(1.) *The Endo-lymph*, flowing freely in the semi-circular canals of the inner ear, is subject to all the laws of fluids, inertia, gravitation, friction. It flows in a straight horizontal current, follows the motion of head and ship. The plane of the canals corresponds most nearly to the direction of the motion, face forwards; reverse the motion, and the endo-lymph continues to flow on, until it is arrested by friction, this causes undue pressure in one or more of the ampullæ which causes a wrong impression to be carried to the sensorium, and insubordination and giddiness is the result—the fluid in the canals is agitated, rocked or washed about, the finer nerve filaments are irritated

and abused, and when this process is repeated a number of times, nausea and vomiting take place.

In the recumbent position, head low, feet to the stern of boat, in which position nature has some beautiful anatomical contrivances to prevent sickness. She has made provision for the equilibrium of the body in the horizontal position, by the change in position of the fluid at the base of the brain into the spinal cavity, in the position of the semi-circular canals on their present extremities. In consequence of these, when the body is recumbent or thrown back, the endo-lymph gravitates to the least sensitive part, and disturbance of them will not have that tendency to alter pressure. This explains why the backward motion in carriages causes nausea. In auditory vertigo we have precisely the same condition by pressure within the inner ear, decided vertigo, headache, nausea, etc. Motion sickness is a semi-physiological prototype of sea sickness. All authorities are agreed on the point that a reversion of the movement in the semi-circular canals is a cause of nausea, vomiting. This form most common in all steam ships, with sea motion and vibration of the engine.

Second Class.—Visceral vomiting, due to mechanical disturbance of the viscera—contusion of the abdominal viscera, produced by the violent heaving of the ship in a heavy sea, has a tendency to cause mechanical disturbance. Here, again, we are compelled to go back to the brain. The endo-lymph in canals follows the motion of the head, and after that motion is stopped, continues on its course for a second or two, and then moves on in its original direction. During this change erroneous impressions are conveyed to the brain, which in turn sends a mistaken message to the abdominal muscles and viscera, and they are brought into action, and complete abdominal contusion is the result. This is of the greatest importance to the viscera, altering their basis of support, and causes them to thump on each other. Besides, there can be little doubt, as the viscera are all covered by the sympathetic and the pæinian corpuscles, that their movement causes a disturbance of the centre of equilibrium. In this form vomiting is very violent.

Third Class.—A mechanical disturbance of the fluid contents of the stomach gives rise to paleness, goneness and vomiting. Sea-sickness exists independent of visual impression, although it may exercise an important influence in some cases. Visual vertigo depends upon an exhaustion of the optic mechanism; but in the visual vertigo of sea-sickness there is a discord between the immediate impressions and a visceral sense of the fitness of things, which passes into a feeling of uncertainty, dizziness and nausea.

All the phenomena of sea-sickness have a rapid tendency to pass away. Nature has so constructed the organ of equilibrium that it is eminently fitted to receive impressions through the physical behaviour of the contents and habit taught that organ, to convey to the sensorium within, correct information of the experience of those impressions. The ocean habit teaches the canals to adapt themselves to the new condition of things, and to pass over erroneous impressions unheeded, which were noticed at first. In fact, the new habit becomes so strong that a disturbance of it by return to land will be marked by a peculiar phenomena, as is witnessed in the unsteady gait of a sailor, and others.

Sea-sickness teaches us that there is within us a sense of passive motion. We see it in the child being lulled to sleep in the rocking horse, rocking chair; horseback exercise, vehicular motion of all kinds, passive movements of the body. It is agreeable, when mild, and when in a line with the semi-circular canals; disagreeable, when the natural harmony is broken. The feeling of goneness is due in a great measure to the subsidence of the abdominal in the erect posture, and irritation of the nerve-centres by ceaseless movement of the ship.

Best remedies to act on canals, sulphate quinine, nitrite of amyl, pills of nitroglycerine, bromohydric acid.

Bandage round abdomen, recumbent posture, and, when about, face to the front of ship, etc.

PERITONITIS.

A partial death, or inflammation, of the serous membrane lining the abdominal cavity and investing the viscera; a white fibrous tissue of very low organization. Nothing so likely to ward off any depressing influence as strong vital force, and this is especially true with reference to the peritoneal membrane, for we find in a large per cent. of all cases that it is predisposed to by some depression of the sympathetic system, and that the common exciting causes, such as minor injuries, would be insufficient, were it not on account of this nervous depression. In the condition of partial death of this structure there is also a degradation of its normal living matter into a micro-organism or diseased germ, for we find that if a physician is attending a case of acute peritonitis in a male, and by chance becomes the attendant in a case of parturition, the lady will become affected with peritonitis, severe or mild, according to her vital stamina, so that thus far there seems to be a living poison present. The general causes are injuries, perforation of stomach and bowels, strangulated hernia, damage done to organs in the abdominal cavity, as stomach, uterus, liver, etc.

(1.) Acute Peritonitis.—Acute inflammation of the peritoneum is one of the most grave and serious calamities that can befall a human being. When not due to wounds, it is generally caused by injuries to organs, as the uterus, beginning as a case of metritis, or inflammation of that organ, and spreading over every organ in the visceral cavity. Originating in that manner it is called metro-peritonitis.

Symptoms.—Chilliness or violent rigors, accompanied with severe, sharp, lancinating pain, extending over the entire abdomen, with high fever, small, hard, wiry pulse, abdomen swells, becomes exquisitely tender on pressure, even sensitive to the slightest pressure, as bed-clothes, or movement of abdominal muscles; patient lies on back, with knees bent, legs drawn up; abdomen becomes more enlarged, tense and hot, tympanitic or drummy; motionless in respiration; features become sharp, expressive of anxiety and suffering; the tongue is sharp-pointed, dry, with a variable coat, according to the location of inflammation; nausea, vomiting, constipation; skin very dry and burning; pulse becomes more rapid; respiration hurried; often hiccough. If case drags, the abdomen ceases to be tympanitic, but remains enlarged from effusion of serum. If the injury is irreparable, or treatment ineffective, and the case about to terminate fatally, abdomen becomes more distended, pulse thready and quick, but intermittent; face becomes of a ghastly expression, cold, clammy sweat, pain suddenly ceases. Unless due to perforation of stomach or bowels, the ordinary duration of peritonitis is about one week; when due to perforation, twenty-four or forty-eight hours. After sudden cessation of pain, when about to terminate fatally, patient may live twenty-four to thirty-six hours.

Treatment.—The aim of treatment is to establish a renewal of life in the affected membrane. For effecting this purpose narcotism with opium, or its alkaloids, is our only resource. The first difficulty we have to contend with is in selecting the form, whether it be the crude pulverized opium alone, or with Dovers powders, or as paragoric, or the sulphate of morphia in cinnamon water. The best plan is to try the crude pulverized alone or with of Dovers powder every half hour in half grain doses. If it answers the purpose of causing the patient to sleep, then push it; if it stimulates, try other forms until you find the one that answers the purpose. In conjunction or in alternation, a few drops of tincture of green root gelseminum. If stomach is rejecting everything introduced, same remedies in suppositories or capsules per rectum, in double doses. At the same time, the attending physician or nurse, must select one of three remedies and apply over the entire abdomen; either a fly blister for six hours, or until it causes redness, or turpentine applied until the

same effect is produced, or tartar emetic ointment rubbed in over the entire abdomen. There is to be no blistering, as that is injurious, barbarous, draws off the liquor sanguinis of the blood. Whichever is applied, must be followed with large linseed meal poultices made with glycerine and one or more ounces of tincture of opium incorporated in it. Change every two or three hours. If there is any delay in procuring the above articles put on hot poultices of anything that will hold heat and moisture, until proper remedies can be procured.

Local stimulants to the entire abdomen are of the greatest value; they promote vitality, create a renewal of life; their use is founded on sound principles, for it is a law of physiology that when two parts are nervously in sympathy with each other, that if we excite a greater action in the nerves of one, we distract action from the nerves of the other. The blister or turpentine to erythema is a powerful means, it cures by withdrawing nervous action from the nerves of the part, and followed by hot poultices induces contractility of bloodvessels and a renewal of life. As soon as the skin begins to pour out a copious sweat, and stertorous breathing take place, patient must be turned over on right side, carefully watched, and as a rule ten to twelve hours of narcotism is sufficient. Then waked up and a little barley-water, or lime-water and milk given. If there are any indications of sinking, aromatic spirits of ammonia. The opium, gelseminum and hot poultices should be continued for about a week, the two former in small doses, at intervals of three or four hours apart. Cautiously and carefully begin with a little diet, as milk and water, beef-tea, essence of beef. Enemata of warm castile soap water daily, to remove all fecal accumulation in colon or rectum. A cradle over abdomen to support bed clothes; most perfect quiet obtained. The best of nursing and care, air of sick room to be kept warm and pure; carry case over seventh day, then treatment for chronic peritonitis should be adopted.

(2.) **Chronic Peritonitis** may be a sequel of an acute attack; more frequently an independent affection. It may arise from cold, suppression of menses, miscarriage, mechanical violence, such as blows, rheumatism and gout, ovarian, irritation. In children, it is associated with deposit of tubercle.

Symptoms.—General languor, lassitude, debility, with abdominal pain, sharp and lancinating, tender to pressure, and considerable swelling of abdomen; sometimes slight fever, with obstinate diarrhœa, nausea, wasting and prostration. If case progresses, a good deal of abdominal tension; often effusion of lymph, with adhesions, which give rise to colic. In some cases, effusion of serum or ascites is immense. In chronic tubercular peritonitis in children, there is usually enlargement of mesentery.

Treatment.—Patient should go to bed for a few weeks, until every vestige of pain has disappeared; being treated in the same manner as if the case was acute, with opium, gelseminum and local stimulants. As soon as pain has disappeared, alteratives and tonics, as ozonized saxifraga, iodide of potassa, ozonized glycerine, cinchona and mineral acids, tincture of white bryony. To the abdomen, ozonized clay, if effusion of lymph is suspected, or iodoform ointment, or ozone ointment, iodide of cadmium ointment; and over all a flannel roller; great attention to the bowels and diet; milk and lime-water, raw eggs, raw extract of meat.

DROPSY OF THE ABDOMEN.

Ascites, or water in the cavity of the abdomen, may arise from two causes, peritonitis and disease of the liver.

(1.) From all forms of peritoneal irritation, it may take place as the result of the existing inflammation, but when the cavity becomes pretty well filled up it arises from the distension and unraveling of the peritoneal fibres or sacs.

(2.) Chronic affections of liver, as chronic inflammation, causing enlargement, distension of its peritoneal covering, obliteration of its proper structure by fatty, amyloid, cystic degeneration, blocking up portal vein, obstructing passage of blood through the liver.

Besides these two principal conditions, there may be ascites in disease of the heart, spleen, kidneys; but it takes place chiefly by the blending of the circulation of those organs with the liver. It may occur, also, in extensive burns, anæmia, etc.

Symptoms.—The physical appearance of the patient will depend a good deal on the point whether the dropsy arises from the obstruction in the liver or from chronic peritonitis. If from the liver, the history of the case, the brown coat on tongue, sallow or yellow skin, cough, dullness on percussion of upper lobe of right lung, pain in shoulders, liver small or large, urine loaded with bile; whereas, if from chronic peritonitis, none of those symptoms will likely be present; upper part of body wasted, features pinched, countenance anxious, abdomen greatly enlarged, skin shining, superficial veins dilated. In standing up, spreading fingers of left hand over right side of the abdomen of the patient, and tapping gently with the right hand the left side of abdomen, a wave or sense of fluctuation can be felt undulating from side to side. This fluctuation or vibration is most reliable. Empty bowels with castor oil, lay patient in recumbent posture; then there is resonance on percussion; bowels floating on top of water. Besides there is a sense of suffocation in recumbent posture, from water pressing up on diaphragm; difficulty of breathing; respiratory

murmur cannot be heard so low down as in health; tubular breathing; apex of heart elevated and pressed to right side. Commonly there is swelling of the feet and legs, and if kidneys suffer, cedema of face and arms. Health gradually deteriorates, weakness and emaciation, loss of appetite, sleeplessness, inability to lie down, exhaustion; ending fatally, when due to organic disease of liver.

Treatment.—If due to chronic peritonitis, the removal of the fluid will usually effect a cure; if due to organic disease of the liver, the water may be removed again and again, and it will re-accumulate, because the cause does not permit of removal. If about to attempt its removal, build up patient with tonics and best of diet; then begin with infusion of digitalis, and follow up with diaphoretics, diuretics, haircap moss, and hydragogue cathartics; those failing, try absorbents, such as iodide of potass.

Remedies failing, place patient in a sitting posture, with long bandage round abdomen, held by two assistants, one at each side; insert trocar and canula, with a gentle rotatory movement through the abdominal wall in the median line, two-and-a-half inches below the umbilicus; as soon as water is felt on fingers, withdraw the trocar, and the fluid will ooze through the canula; assistants tightening the bandage as fluid escapes. After it is entirely removed a compress should be applied, and over all a bandage. Opium in sufficient doses should be given; patient kept in bed, and, after several days, bowels opened with oil and enemata. (See *Dropsy*.)

MARASMUS, OR TABES MESENTERICA.

Marasmus, or tabes mesenterica, a weakened, relaxed or devitalized condition of the mesenteric glands, usually caused by diarrhœa or cholera infantum in tubercular children under two years of age, whereby these glands become infiltrated with the germ tubercle, which lodge in its meshes or net-work, breed and grow with great rapidity, filling up its tissue, destroys its proper function, and their growth obstructs the passage of chyle through the convoluted lacteals which traverse the mesentery in all directions; consequently the blood is deprived of supply, and all the tissues of the body starve and waste away.

Symptoms.—Usually associated with diarrhœa or cholera infantum; abdomen becomes hot and tender; bloats; more or less constant pain in the bowels, sometimes severe, causing legs to be drawn up towards abdomen; deep red color of lips; angles of mouth covered with small ulcers, or lips fissured; passages from the bowels, which resemble chopped spinach, and very acid, now become more irritating and irregular, more frequent, watery, unhealthy and fœtid; abdomen swells and

becomes tense and greatly enlarged; at the same time the emaciation is fearful; the patient gets down to skin and bone; even the marrow in bones wastes; skin white and wrinkled; intense debility, with rapid, increasing weakness. The abdomen, although intensely swollen, soon becomes irregular to the feel, lumpy in masses like large eggs at first; when tubercle is active and growing, soft; then a cheesy feel, and latterly calcareous; there may be a tubercular condition of lungs, bronchi, or membranes of brain. Its duration is uncertain, depending on the condition of vital force and season of the year. If it appear early in June, the little sufferer, unless taken to the seashore or country, stands a poor chance of recovery before September; whereas, if it appears in August, there is usually little difficulty in tiding the patient into the cool weather. It may occur at any season, but much more common when the vital forces of the child are depressed by solar heat and city life—season when cholera infantum is prevalent.

Treatment.—If possible, get rid of the cause by an emetic, cleaning out bowels, administering white hellebore in tincture, and other remedies for cholera infantum.

For checking the effusion and growth of tubercle in the mesentery, ozonized clay should be applied a few hours daily over the entire abdomen—not long enough to cause redness; after its removal a spice plaster, made of equal parts of pulverized cloves, allspice, cinnamon, and Peruvian bark, saturated with vinegar or alcohol; spread between fine book-muslin, then applied, and over all the flannel roller; when it cakes it can be crumbled up, moistened with the alcohol and re-applied in the same form. The potent antiseptic properties of the clay and spices penetrates by endosmosis to the tubercle in the mesentery, and destroys it; besides, their stimulating properties in arresting vomiting, and increased activity of bowels, prevents further deposits.

To destroy tubercle in the blood and mesentery, use ozone-water or glycerite of ozone, or tincture of iodine in sweet milk, or hypophosphite of potassa in juice of meat, or tincture of iodine and carbolic acid; one or two of these remedies should be given every two hours, according to preference.

*To prevent emaciation, bath twice daily; and after each bath or sponging, inunction of warm olive oil into the entire body: from one to three ounces should be gently rubbed in, and juice of raw meat fed every hour. Raw food or meat extracts make blood faster than any other form of diet. Raw extracts are peculiarly available in *tabes mesenterica*. These are to be used irrespective of the mother's milk. Mother's milk, if child is still nursing, is the best and most natural food for the infant, and never can be completely substituted by artificial nourish-*

ment; but if the child is weaned, rather than risk diseased cow's milk, which is so abundant, milk-food should be given, which, if prepared by the German method, is free from all disease germs. Raw eggs; allowed to suck partially-broiled steak.

To destroy the *oidium albicans* in mouth, borax and glycerine.

To stimulate appetite, sulphate of quinine in aromatic sulphuric acid.

Warm clothing, country or sea-shore, well ventilated rooms, and everything calculated to build up vital force.

Tubercular Peritonitis consists in an effusion and growth of tubercle upon the peritoneal membrane. Its cause and symptoms closely resemble *tabes mesenterica*.

Tubercular Enteritis.—Deposit of tubercle on the internal lining membrane of the bowels has also a striking resemblance to *marasmus*. Very often these diseases are combined in one patient.

Tubercular peritonitis and enteritis, without any filling up of the mesentery, are much more easily treated, and recovery more rapid. Treatment same as *tabes*.

DROPSY.

Not a disease, a mere mechanical or pathological effect, consisting in the effusion of watery or serous fluid into one or more of the serous cavities of the body, or in the meshes of the cellular tissue, or in both.

The two common causes are inflammation and obstruction from debility and organic disease; more rarely it is due to disease of the blood, burns, etc.

Dropsy of the Head, or *Hydrocephalus*, is almost invariably due to inflammation of the membranes of the brain and effusion of serum. It is known or recognized by the history of the case, usually a child of tubercular diathesis, commenced under two years of age, by enlargement of the head, a parting of the sutures, head weighty, inability to hold it up, blindness, deafness, mental imbecility or paralysis.

Dropsy of the Chest is either due to pleurisy or valvular disease of heart. *Hydrothorax*, or water in the chest, is recognized by the history of the case: great difficulty of breathing from lungs being pressed with a fluid, and this difficulty increased to absolute smothering if the recumbent posture is assumed; besides dullness on percussion at the base of chest in sitting posture, which disappears if laid down, as the lungs float on top of the water or fluid, and the splashing sound, which is supposed to be heard if quick movements are made, said to resemble the dropping of a drop of water in a barrel almost empty of water.

Dropsy of the Pericardium is caused either by valvular disease or inflammation, and is recognized by the contracted or car-

diac features, difficulty of breathing, œdema of the feet, cough, increased area of dullness on percussion, and sounds of the heart muffled, and absence of all symptoms of enlargement and dilatation.

Dropsy of the Abdomen, or Ascites, is due either to disease or degeneration of the liver, or to peritonitis, and is known by the history of the case: enlarged abdomen, sense of fluctuation, œdema of feet and legs.

Dropsy of the Cellular Tissue is due to contraction or caving in of kidneys, interstitial obliteration, as in Bright's disease; it may begin with a puffiness of ankle or bagging below eyes, or slight swelling in some depending part, and increase until the cellular tissue over the entire body is infiltrated. Organic disease of heart, degeneration of liver, poor blood, as in anæmia, chlorosis, leucocythæmia; purpura and scurvy may also give rise to this form of dropsy to a limited extent, but never like disease of kidneys.

The dropsy may be removed by the proper remedies again and again, but if due to any form of organic disease of heart, liver or kidneys, it will return, until the cause is removed.

Treatment.—In the removal of dropsical effusions there are some points to be observed, which we will enumerate in order:

(1) *The Diet.*—It is of vital importance that the patient have a good appetite, active digestion, and abundance of good food, as beef, mutton, poultry, fish, eggs, cream, fruit and vegetables. We need above all things rich blood; rich, so that neither its watery elements or liquor sanguinis can permeate through the walls of vessels; tonics as cinchona, mineral acids and pepsine are to be used to bring about a good digestion; bowels to be regulated.

(2) External warmth, by flannel clothing and warm apartments.

(3) Before attempting the removal of the fluid, bring the arterial, venous and capillary systems together with the absorbents under the influence of digitalis. To brace up the heart, tighten the walls of arteries and veins, the tincture should be given in eight-drop doses three times a day. To unlock the absorbent system, to flush and prepare the kidneys for pouring out fluids, the infusion to be made as we have laid down, and in doses of from a tablespoonful to a wineglassful three times a day, until it produces its cerebral effects—moodiness, despair; then stop a day or two and begin again; may take a week to effect this. Now is the opportune moment to push diaphoretics, diuretics, hydragogue cathartics, for it is by these we are going to get rid of the serum.

(4) *Diaphoretics.*—The use of vapor bath every other day,

with warmth, with the jaborandi in fluid extract, or pilocarpin, one third of grain by hypodermic injection. If this remedy is used no drinks and patient must positively spit out saliva.

After skin has completed pouring out its secretion in immense quantities, either same evening or next morning, follow in with

(5) *Diuretics*.—An infusion of haircap moss should be drank freely; it causes the kidney to eliminate water abundantly. At the same time the use of hydragogue cathartics should be commenced.

(6) *Hydragogue Cathartics*.—One-twelfth of a grain of elaterin every three hours, will bring away copious watery evacuations from the bowels. Those three remedies are our best, jaborandi for skin, digitalis for kidney, elaterin for bowels.

Besides these three powerful remedies there are numerous others of a milder description.—*Diuretics*: Infusion of squills, nitrate and bitartrate of potassa, buchu, uva ursæ, senega, eider and nitrate of potassa, parsley root, juniper berries.

Diaphoretics.—Infusion of asclepias, eupatorium, elder flowers.

Cathartics.—Podophyllum, acid tartrate of potassa, colocynth.

If above fails, then use alteratives and tonics and return to the above, giving each method a fair trial of about a week, changing, alternating.

There is a form of general dropsy met in hot latitudes, in which hydrothorax, ascites, and general dropsy of the cellular tissue, are all present in one case. It seems to depend on endemic and malarial causes; it is very fatal to the unacclimatized. It is characterized by anæmia, debility, anxiety, numbness of the body, difficulty of breathing, paralysis, exhaustion, with suppression of urine, and death.

The general treatment, as already laid down, should be tried, with quinine, iodine, and nourishing diet.

CONTUSIONS OF THE WALLS OF THE ABDOMEN.

Injuries inflicted by obtuse or blunt bodies, as falls, blows, kicks against some round object, or a jam between two railroad cars. The consequences of an abdominal contusion, even a blow on the stomach, to be regarded as serious. A blow may cause instant death, owing to syncope or shock to solar plexus of sympathetic. In other cases, contusion may cause bruising or laceration of the viscera, and hæmorrhage may result, and cause death in a short time, or in a few hours. The contusion may even rupture some internal organ, and permit extravasation of its contents. There may be no appearance of external injury, and yet the stomach, gall-bladder, intestinal canal, bladder, or pregnant uterus may be torn through—patient dying from collapse or hæmorrhage; or at a later period, from peritonitis or

suppuration and blood poisoning. A contusion, if not very violent, may simply lead to local abscess, from which recovery may take place.

ABSCESS OF THE WALLS OF THE ABDOMEN.

Abscess of the walls of the abdomen may result from quite a variety of causes, as external violence, irritation of belts, boils, erysipelas, or from extension of disease in other parts. From external violence, abscess may occur at any part of the abdominal walls; from the irritation of belts, generally below or near the umbilicus; from boils and erysipelas, at any point; from the extension of disease in other parts, such as in abscess of the liver, the peritoneal covering of the liver uniting with that of the abdomen, and irritation, inflammation, ulceration of the abdominal walls, matter finding its exit externally; inflammation, effusion of lymph and suppuration of vermiform appendix of cæcum, the pus forming a channel to the surface in the right inguinal region; suppuration may take place in areolar tissue of the pelvis; in either ovary in broken-down, strumous women; abscess may point in the groin, or in vagina or bowels; from blows, strains, violence, there may be a suppuration around the kidneys, and the abscess may point in the loins or may find its way into the ureter, or burrow amongst the abdominal muscles; or find its way into the peritoneal cavity. In chronic peritonitis the pus, confined by adhesions, may approach the surface and find an exit. In all forms, abscess to be carefully opened; *when it points*, and if in doubt, use an exploring needle; poultices applied; strength to be supported by good food, tonics, and everything done to relieve pain and suffering.

RUPTURE, OR HERNIA.

A tumor or swelling, formed by the protrusion of more or less of a viscus from its natural cavity. Thus, there may be hernia of the brain, iris, mucous lining of windpipe, lungs, liver, spleen, bladder, uterus and intestine. But when the word stands by itself it is restricted to signify protrusion of the abdominal viscera.

The *predisposing cause* of hernia is some inherent weakness of organization; some parts of the abdominal walls weaker than others, as about the navel, inguinal and crural rings; or there may be a weakness from congenital deficiency, or from disease, wounds, abscess, bruises, distension of the walls by the pregnant uterus, dropsy, or from the relaxing effects of excessive solar heat.

The *exciting causes* are compression of the viscera by the action of the muscles that surround them, especially the dia-

phragm; hence, bodily exertion, lifting, hoisting, straining, jumping, coughing, hallooing, shouting.

A hernia is composed of a sac and its contents. The sac of a hernia is a portion of the reflected layer of peritonæum, which the protruded viscera push before them in their escape, and which forms a pouch containing them. It is very liable to contract adhesions to the surrounding tissue, and in consequence may not return into the abdomen when the hernia is returned. As the hernia increases in size the sac also increases, partly by growth, partly by distension, slight laceration or unraveling, and partly by fresh peritonæum; sometimes it diminishes in thickness, while increasing in capacity; sometimes it becomes thick and divisible into layers. The narrow part that communicates with the abdominal cavity, is called its neck, usually becomes thickened, constricted, and sphincter fibres are often developed in it, which, on slight irritation, causes it to contract. Some hernias are destitute of a sac. This may happen if the viscus is not covered by peritonæum, if the hernia is the result of a wound.

Symptoms.—Usually the patient can speak of it as of something having given way, and on examination a soft, compressible swelling can be detected at some part of the abdominal walls, which increases in size when he stands up; diminishes or disappears when he lies down; dilates when he coughs or makes exertion, and, when properly directed pressure is made upon it, it may disappear. When it contains only intestine it is termed *Enterocoele*; when only omentum, *Epiplocele*. The former is smooth, round and elastic, and flatulent croakings are heard in it, and, when pressed upon the bowel returns to the abdomen with a sudden jerk or gurgling noise; the latter is flat, inelastic, flabby, unequal to the touch, and when pressed upon returns without any noise and very slowly. A large number of hernia contain both omentum and bowel, and are called *entero-epiplocele*.

Division.—Hernia is divided into several varieties, according to its location, as umbilical, inguinal, femoral; and according to the condition of the protruded viscera, which may be reducible, irreducible, or strangulated, or subject to some constriction that prevents its return, interferes with its contents or circulation.

1. Reducible Hernia.—One that can by well adapted pressure or manipulation be returned into its natural cavity, forming a swelling that dilates on coughing, diminishing or disappearing when patient lies down.

Treatment.—It should be kept in its position by a pad, compress, truss, or other apparatus; and if compression is moderately firm it will excite adhesive inflammation, and very probably a cure.

2. Irreducible Hernia.—A hernia is said to be irreducible when the protruded viscera cannot be returned into the abdomen.

Causes.—Adhesion of the sac to the bowel, by a deposit of lymph bands; enlargement of mesentery, or omentum, or other organic changes.

Symptoms.—Besides the ordinary symptoms, there is likely to be a dragging pain in the back and abdomen; occasional attacks of vomiting, or obstinate constipation, and a feeling of exhaustion.

Treatment.—This may be either palliative or radical. The palliative treatment consists in the application of a hollow bag truss, or else a truss with a hollow pad, that shall firmly embrace the hernia, and prevent all further protrusion. Violent exercise, exertion, excess, or constipation, should be guarded against. The radical operation consists in cutting down upon the parts, breaking up adhesion, returning the bowel or omentum. An operation that is not justifiable unless strangulation has taken place.

3. Strangulated Hernia.—A hernia may be said to be strangulated when it is constricted in any way, so that the contents of the protruded bowel cannot be propelled onwards, and the return of the venous blood is impeded.

Causes.—A sudden protrusion of bowel or omentum through a narrow aperture, as a result of some violent exertion, or distension of the protruded intestine by flatus or fæces, or a tumefaction of the omentum, a swelling or contraction of the muscular fibres at neck.

Symptoms.—In addition to the ordinary symptoms of hernia we have, when it is strangulated, those of obstruction of the bowels, and peritonitis. There is flatulence, colicky pains, a sense of tightness around the abdomen, a desire to defecate, and inability to do so. Vomiting, first the contents of stomach, then mucous bile; and lastly, matter from small intestine. The hernial tumor cannot be returned; it is uneasy or painful, tense and incompressible. There is a perfect obstruction; the swelling does not now dilate. The neck of the sac becomes tender, and this tenderness diffuses itself over the entire abdomen, which becomes painful and tympanitic. Peritonitis sets in: face white, pinched, anxious; vomiting constant, pulse small, hard, wiry; patient restless and despondent, and after a variable time parts begin to mortify. There may be much variety in the symptoms, death taking place early or remote.

Treatment.—The indications here are to return the intestine, and if this cannot be done to cut down upon the neck and divide it, and return the bowel and omentum. If inflammatory symptoms have not appeared, the best plan is to relax

the muscular system by one or more of the following methods, and then perform the taxis:

To cause profound relaxation, you must be guided by what you can procure the quickest, and if it fails, then the others, one or more. We shall enumerate the best first, and so on; they are simply auxiliary measures to aid the taxis. Let patient inhale a little chloroform, and when he is just going under, insert a hypodermic injection of one-quarter grain of morphia into the cellular tissue. This causes very profound muscular relaxation, and lasts long. Or let patient inhale alcohol, chloroform, and ether, till anæsthesia is procured; enemas of an infusion of lobelia or tobacco, with warm bath, with a little tobacco or lobelia, or an infusion or fluid extract of jaborina could be given.

If there is any time to spare, large doses of opium and hyoscinamus; the latter drug has a remarkable influence over all the hollow viscera; and its liberal use in hernia often spares the surgeon's knife, and saves many lives. As a local application, heat is superior to cold: hot poultices of belladonna, lobelia and linseed. Once thoroughly relaxed, patient free from all clothes, an intelligent assistant should be selected, and instructed to knead, or press the bowels gently well up to the diaphragm; head and shoulders well elevated, and knees drawn up. Bladder and rectum carefully emptied before relaxant is administered.

The *Taxis* is a term employed to signify the manipulation of the hernial tumor by the hands of the surgeon. In performing the taxis the tumor should be drawn gently forward, between both hands (assistant kneading actively to diaphragm), in the aris of the neck. Hold in this position a few minutes; if patient is awake cause him to make a deep expiration, and hold his breath. Then press tumor between both hands, so as to squeeze out its contents, or gas and venous blood; then manipulate with the fingers at the neck; by pushing a little you will likely have the satisfaction of feeling it leave your hands and hearing a gurgling noise accompanying the return of the bowel into its natural cavity. To effect this, the position of the patient should be such as will relax every muscle; the kneading must be vigorously carried out, and the tumour in all cases drawn gently forward. In all cases the taxis must be performed with gentleness; no force or violence to bruise or injure. If not successful by the above plan, which is rarely the case, after a trial of fifteen or twenty minutes, it is often better to rest a little, and try again. Try every means, even to introducing copious injections up the rectum, or hanging up the patient by the heels. Good common sense, kindness and patience are great elements of success. When once returned, if insisted on by the patient, and his friends concurring, a radical

cure should be effected by some of the following methods, each one having the same object in view, to wit: to excite a slight irritation, so as to cause inflammation, with effusion of lymph, which will block up the orifice and render the descent of the bowel again impossible. For that purpose the following are successfully used:

If the parts are hairy, shave off, and apply the irritating plaster for about six weeks, and over it the truss, or pad, or compress. This plaster is to be spread fresh every morning, and applied, in size from three to four inches square. A good method, somewhat painful and tedious, but safe. Another plan is to introduce a small knife and scarify around the ring. Still another method, and a favorite one with many, is to inject right against, or in the inner surface of ring, some irritant, such as fluid extract of oak bark, tincture of cantharides, tincture of iodine; this is done with the ordinary hypodermic syringe, or one specially prepared for the purpose. If those are used, case must be watched for peritonitis. Still another plan is the introduction of sutures of saddlers' silk, iron or silver wire, and other methods of a similar kind.

If strangulated hernia cannot be reduced, an operation for its relief must not be too long delayed; and when that is done, if successful, it invariably effects a radical cure. Although we say do not delay the operation, still, in aged people, with large hernias, wait as long as possible and use remedies, and never forget the magnificent action of hyosciamus and opium on the hollow viscera.

The operation is a simple one, free from danger, if the surgeon knows the parts and does not cut an artery or wound the bowel—dividing layer after layer over the tumor near its neck, down to the bowel, and then dividing the neck and returning the bowel or omentum, or both, into the abdomen, stitching up wound in the usual manner and applying a firm compress. In all cases avoid purgatives in the management of cases, as irritating and injurious.

INGUINAL HERNIA.

Inguinal hernia is that which protrudes through one or both abdominal rings. There are four different varieties—oblique, direct, congenital and encysted.

The *oblique* is the most common. It takes precisely the same course as the testicle takes in its passage from the abdomen into the scrotum. It begins as a fullness, or swelling, at the internal ring, a little above Poupart's ligament, and passes into the inguinal canal, and, if the protrusion increases, it descends into the scrotum of the male, or labia of the female. The coverings of this hernia are skin, a layer of condensed cellular

tissue, a tendonous layer, cremaster muscle, a cellular layer and the sac. The internal epigastric artery is always internal to the neck of the sac, the spermatic cord behind the sac, but in old cases parts are somewhat changed.

The *direct* inguinal bursts through the conjoined tendon of the internal oblique and transversalis muscles, just behind the external ring. Its coverings are the same as the oblique. The epigastric artery runs external to the neck of the sac.

The *congenital* hernia is a variety of the oblique, and is so called because the state of the parts admit of it at birth.

The *encysted* is a variety of the congenital. The protruding bowel pushes before it a sac of peritoneum, either into or behind the tunica vaginalis, and this tunic and sac adhere together, so that this hernia has two sacs.

Diagnosis.—This hernia is to be distinguished by dropsy of the scrotum, as follows: Hydrocele begins at the bottom of the scrotum; there is fluctuation; if the serum is not turbid it can be seen through; does not dilate on coughing; whereas, hernia begins at top, is not transparent, does not fluctuate, dilates on coughing. In varicocele, where there is a varicose condition of the veins of the cord, it resembles hernia, as it dilates on coughing, increases in erect posture, may disappear at night, but it feels like a bag of worms. Undescended testicles are very easily recognized.

Treatment.—If reducible it should be returned and kept in its place with a truss or other mechanical support; if irreducible, a hollow bag or truss should be worn, to prevent further protrusion; if strangulated, relaxants and the taxis should be resorted to, and if it fails, and trying every expedient, an operation should be performed.

In performing the taxis for this hernia, patient should be placed on back, head and shoulders well elevated, knees drawn up and thighs close together, the hernia drawn gently down; then the assistant actively kneading the bowels well up to diaphragm and the pressure by the operator made upward and outward.

FEMORAL OR CRURAL HERNIA.

Femoral hernia is that which escapes behind Poupart's ligament, passes through the crural ring and descends on the thigh. This hernia is covered by skin, fascia of the thigh loaded with fat, a layer of cellular tissue and sac. From its surroundings it never can become of great size. It is almost peculiar to females, on account of the extreme breadth of their pelvis. It is easily recognized by its location, increasing in size when she stands up, dilating in coughing; it is usually small. Psoas abscess also dilates when she coughs, diminishes or disappears

when the patient lies down ; but hectic and disease of the spine are always present in that form of abscess. Varix of the femoral vein bears some likeness to it, as it dilates when the patient coughs, diminishes or disappears when she lies down ; but a careful observation will reveal the difference. It would certainly be a person grossly ignorant that would mistake it for bubo.

Treatment.—The reducible should be returned and kept in position by a truss. The irreducible supported by a hollow truss.

If strangulated, the taxis must be tried, and in performing this the patient should be placed in the usual position on back, head and shoulders elevated, knees drawn up, with the thigh of the affected side rolled inward and crossed over toward the other side. The tumor should be drawn downward, the kneading vigorously carried out, and the tumor pressed with the points of the fingers backward and upward. If the taxis and chloform do not succeed, the operation should be resorted to.

UMBILICAL HERNIA.

Rupture at the navel is most common in children at birth, and in women who have been frequently pregnant ; although in the so-called hernia of adults, the hernial aperture is really not at the umbilicus, but a little on one side of it. The coverings of this hernia are skin, superficial fascia and sac. They are always thin and rarely become adherent.

Treatment.—If reducible, there should be strapped over the ring or neck a convex piece of some hard substance, its convex side toward the abdomen, strapped to the abdominal walls by adhesive plaster, and over all a bandage or belt. The irreducible should be supported by a hollow bag or truss. If strangulated, the taxis should be resorted to ; patient in usual position ; all failing, an operation should be resorted to.

Ventral Hernia.—When the protrusion occurs at any other part of the abdominal walls, save at the ordinary places, usually a consequence of wounds or bruises.

Perineal Hernia.—Descends between the bladder and rectum, forcing its way through the pelvic fascia and levata ani.

Vaginal Hernia.—In which the tumor projects into and blocks up the the vagina, displaces the uterus, obstructs the rectum. Very common cause, usually, tight lacing or wearing belts, in order to have a small abdomen.

Labial or Pudendal Hernia.—Descends between the vagina and ramus of the ischion, and forms a tumor in one of the labia. It is to be distinguished from inguinal hernia by the absence of swelling at the abdominal rings. These hernias are to be replaced by pressure with the fingers, and kept in place by pads and trusses.

Obturator, Ischiatic, and Diaphragmatic Hernia, so-called from their location, are very rare.

DISEASES OF THE LYMPHATIC SYSTEM.

After the food has been subjected to the action of the salivary secretion in the mouth, to the pepsin and gastric juices of the stomach, and lastly, to the emulsifying action of the pancreatic secretion in the duodenum, the chylous product is carried into the lymph channels of the mesentery, into the lymph canals, widely spread over the entire body, but most abundant in the neck, axilla, groin, the suprarenal capsules, spleen, and the pink marrow of the bones. These constitute the great chain of lymphatics, through which the chyle passes before it is emptied into the venous circulation as embryonic blood. And a disease or disorder, or derangement of any of those lymph-raising factories, gives rise to the most persistent anemia, or white cell disease of the blood. Under other heads in another part of this work, we have noticed the diseases of the spleen, that ductless gland, that storehouse of red blood and lymph vitalizer; *tabes mesenterica* or *marasmus* in disease of the mesentery; the suprarenal capsules under Addison's disease, and Hodgkin's disease, under general derangement of the lymphatics.

The pink marrow in the cancellous bones belongs to this same class of organs, and probably discharges most of the functions of the ordinary lymph glands. Living germs in the blood, such as tubercle, cancer, syphilis, etc., are very liable to irritate and impair those canals, and give rise to very chronic inflammation and degeneration. Now, as we find pink marrow in the ends of the long bones, in the bodies of the vertebrae, in the bones of the hands and feet; and when those disease-germs are present in the blood we often find the same conditions present that we find in those of the cellular tissue, the same sluggishness, the same tendency to degeneration. A lymphatic in the neck or groin has room to swell, if inflammation should occur, and if it suppurates its contents can excite ulceration and perforation, and be discharged from the system. But this cannot be so easily done in bone glands, which are bound down inside of a bony wall or shell, and the swelling, which is a sequence of the inflammation, results in compression and strangulation. We have beautiful examples of this in the wrist and hand, in the head of the thigh bone, in hip-disease, so called, and in white swelling at the knee-joint; in those bones when the inflammation is permitted to proceed, the inflamed and suppu-

rating tissues force an outlet wherever they can most easily effect it. The compact shell is thinned, and the inflamed marrow takes its course into the joint, through the articular cartilages. When the marrow abscess bursts into a joint a form of suppurative synovitis is set up, and the joint soon becomes disorganized.

There is, perhaps, no subject of greater interest in the whole range of practical medicine than lymphatic disease, and one not understood or even appreciated by the ordinary physician.

ADENOMA, OR HODGKINS' DISEASE.

A peculiar disease, in which there is a progressive enlargement of nearly all the lymphatic glands by an increase of glandular structure.

Symptoms.—Gradual painless enlargement of nearly all the lymphatic glands. Glands of neck, axilla, groin symmetrically enlarged, not inflamed or fused together; thoracic and abdominal glands also affected. Patient has all the symptoms of anæmia and leucocythæmia; is very weak, looses flesh, and suffers from great exhaustion on the slightest exertion. The white corpuscles in blood is greatly increased; tightness or constriction of chest and abdomen; progressive increasing debility.

The Diagnosis and Pathology of this disease is easy—a progressive enlargement of the lymphatic glands, especially of the neck and groin, and at the same time the spleen is much enlarged, and contains some deposit, chiefly embryonic tubercle. These glands, when cut into, are uniform in structure, translucent and tough, and usually consist of a combination of germs, tubercule, syphilis, or cancer, one or all, the contents appearing to the naked eye as albuminous or lardaceous matter, and precisely the same in the spleen, mesentery and pink marrow. It is this blocking up of those blood-raising glands that gives us the extreme anæmia, dropsy, exhaustion and death. In all cases, tubercle is present, whether the syphilitic or cancer germ be present or not.

No better criterion, or gauge, or index can be given of the intensity of germ-disease—the degraded living matter of our own bodies—than the enlargement of the lymphatic system, their engorgement, or blocking up, with disease-germs.

Treatment.—Alteratives and tonics, the most nourishing food, sea air, change of scene.

INFLAMMATION OF LYMPHATIC GLANDS.

The lymph canals or channels are liable to take on inflammation from a great variety of causes, chiefly, however, due to diseased germs in the blood, or to local, or reflex irritation, so that we have simple adenitis from irritation, as walking, exercise,

ingrowing toe-nail; adenitis, due to tubercle, syphilis, cancer, etc., etc. Most commonly met with about neck, axillæ, groin. It may be acute or chronic.

Symptoms.—In the acute form there is languor, lassitude, debility, rigors, and a fever, and the affected glands become hot, swollen, hard, tender, and very painful. As the swelling increases in size there is usually redness or lividity over the part. If the convoluted tubes become obstructed the surrounding tissues swell. Unless resolution occur, or acute stage subside into chronic, there will be rigors, pain change to a throbbing, and the gland will suppurate.

In the chronic form there is no fever, nor much local pain or heat, but induration, with persistent enlargement. The adjacent tissues are not much involved, so that the gland is movable. In true syphilitic, or cancerous adenitis, gland seldom suppurates. The tubercular form is most common about neck or arm-pit, and is invariably chronic; most common in children and young ladies. There are rarely any other symptoms but progressive enlargement of a chain of glands, which become filled up with tubercular germs, which are at first albuminous, then milky; by and by cheesy, and latterly, calcareous. In either of the stages glands may remain stationary for a long time, and gradually ulceration of gland, cellular tissue and skin takes place, and its contents escapes. There are usually several of them, and they form a union by sinuses underneath the skin, and communicate. As a rule, when suppuration does take place, there is slight rigors, fever, restlessness, irritability, tongue coats, bowels constipate, appetite fails, urine scanty, and loaded with urates. When the tubercular diathesis is very strong there may be a general degeneration of the glands, and great impairment of the general health. When the lymph canals of the mesentery are irritated, in diarrhœa of tubercular children, we have the remarkable disease, *tabes mesenterica*.

Treatment.—In all cases control fever with aconite and serpentaria. Open bowels with cascara or other mild laxatives. Administer tonics, as cinchona, golden seal, before meals, and alteratives two hours after eating, as compound syrup phytolacca ozonized, glycerite of ozone, ozone-water, iodide potass, with daily baths, flannel clothing, exercise in open air, and the very best of food. To the glands, try first ozonized clay, which is our best stimulant and discutient. That failing, stramonium or belladonna ointment, with iodide of potass; iodoform ointment twenty to forty grains to ounce of cerate; iodide of lead ointment.

DISEASES OF THE URINARY ORGANS.

Acute Inflammation of the Kidneys.—*Inflammation of the Substance of the Kidneys, or Acute Nephritis*, is a comparatively rare affection.

It is predisposed to by debility, or a tubercular diathesis, poor living, mental depression. Its exciting causes are cold, damp, exposure to vicissitudes of weather, mechanical injuries, lifting, hoisting, strains, blows; to the presence of calculi or gravel in the kidneys; excessive beer or whisky drinking; the drastic action of such drugs as turpentine, balsam copaiba, cantharides, and it is also caused by diseased germs.

Symptoms.—In addition to the usual symptoms of languor, lassitude, debility, there is great constitutional disturbance, headache, pain in back and legs, rigors, fever, nausea, vomiting, hard, frequent, but small, wiry pulse, constipation, and a localized pain over the region of the kidneys, increased by pressure and movement; pain is permanent and severe and often extends down the ureter to the bladder, groin, scrotum, or testicle; besides, there is numbness of the anterior portion of thighs, retraction of the testicle and tympanitis; frequent micturition, a desire to void water when there is none in the bladder, or passed in drops; often suppression of urine, and if there is any passed it is very high colored and contains casts of the kidney tubes, or blood in large or small amount, or pus. If the urine is suppressed there will be uræmia, with coma or convulsions. If recovery follow it is liable to leave the kidneys weak for some time. Besides resolution or recovery, the case may terminate in a violent attack of hæmaturia, and get well; or, in effusion of lymph and abscess of variable sizes, which are very destructive to the body of the kidney.

These abscesses are likely to lead to ulceration, perforation of capsules, and renal fistula, and establishment of a muco-purulent discharge; often fatal hectic associated with those abscesses. In favorable cases the pus is evacuated, the kidney heals up, and a good cure takes place. Besides being a result of inflammation, abscess may be due to the presence of a stone in the kidney, obstructing and irritating the passages.

Treatment.—If seen early, administer an emetic; follow with aperient and enemata and alcoholic vapor bath; then put patient to bed, between blankets; apply mustard sinapisms

over kidneys and over stomach; when a very decided redness is produced, hot linseed poultices; disturb patient as little as possible in their application. Administer aconite, tincture of green root gelsemium and digitalis, in small doses, frequently repeated till pulse reaches 60; then, at longer intervals. Those three arterial sedatives operate well, and should be given for some time in smaller doses, at longer intervals. If there is the slightest tendency to uræmic symptoms, hypodermic injections of one-third of a grain of pilocarpin. Low diet, milk and lime-water, beef-tea. No drink, nothing to give kidneys work. If case progresses favorably, apply irritating plaster over kidneys, and administer either quinine, with aromatic sulphuric acids, or compound tincture of cinchona with nitromuriatic acid. For two or three months patient should use, three times a day, either an infusion of buchu, or uva ursæ, or queen of meadow, or pipsissewa, or cleavers, or pareira brava, to restore tone to kidneys.

ACUTE DESQUAMATIVE NEPHRITIS.

Tubular nephritis, or acute albuminous nephritis, is an affection of the kidneys, greatly on the increase, and forms what is known as acute Bright's disease. Its chief characteristics are excessive proliferation of the convoluted tubes of the kidneys, with congestion of the malpighian tufts, an exfoliation of the walls, and the white blood escapes. The shedding, or shelling, or peeling of the tubes in the process of proliferation, by which they lose their epithelial lining, chokes up the tubes, obstructs secretion. The morbid process is tubular, interlobular, interstitial, commencing at the surface, and proceeding inwards, leaving the cortex pale. In this process the walls of vessels usually give way, and the serum and white corpuscles mingle with the urine, rendering it albuminous, the fibrin coagulates in the tubes, and forms casts. The malpighian bodies form bright red points, pyramids, dark and congested; kidneys much enlarged.

Causes.—Privation, exposure to wet or cold, but especially when the nerves of the kidney are weakened, and there is a union of the urate of soda with lithic acid from beer or ale-drinking, and especially the germs of scarlatina.

Symptoms.—There is a sudden seizure of chilliness, rigors, fever, with headache, thirst, vomiting, restlessness, with pain and tenderness over region of the kidneys; frequent micturition; urine scanty; of a dark, smoky color, persistent and highly albuminous, with abundance of fibrinous casts, epithelial casts, renal epithelium, blood casts, and few blood corpuscles; dropsy of the cellular tissue, general œdema, face puffy, hand swells if it hangs down; dropsy and anæmia; a strong tendency to

effusion of serum from membranes of brain, peritoneal coat, pleura.

There are cases occasionally met with of general dropsy and albumenuria, without a desquamation or peeling off of the renal epithelium, called *non-desquamative* disease of the kidneys. This is apt to occur in bad cases of blood-poisoning, owing to a failure of vital power to eliminate morbid material from the system.

A favorable sign is free and copious urination without albumen; an unfavorable indication is scanty, or total suppression of urine, aggravated dropsy and effusion into the serous cavities, pleura, pericardium, and peritonæum.

Treatment.—If the result of intemperance, active measures, asscupping over the kidneys; open bowels quickly with elaterium; alcoholic vapor bath; then put to bed between blankets; mustard, followed by hot poultices over kidneys; very free diaphoresis, with jaborandi or pilocarpin; try first infusion of digitalis and nitrate of potass; and if that fail, citrate of potassa in infusion of haircap moss, and general treatment as laid down under *Bright's Disease*.

In the little child, whose kidney tubes are peeling off and exfoliating, our treatment must be more gentle, and still efficient, but different from the above—warm baths; confinement to bed; dry heat to kidneys, in the form of chamomile flowers or bran in a bag, heated in an oven; to lie between blankets, and give most nutritious diet of beef-tea, milk, eggs, etc. Try infusion of digitalis and sweet spirits of nitre, in alternation with quinine and aromatic sulphuric acid. Open bowels with compound licorice powder. The infusion of digitalis is our best remedy; but if it fail, try infusion of asparagus-tops and nitrate of potassa, or infusion of parsley-root and citrate of potass. Persevere with the quinine and aromatic sulphuric acid. If those remedies do not avail, then try nitroglycerine—a two per cent. solution, in one-drop doses, every four hours. Most excellent results have followed the use of the remedy in this form of acute interstitial nephritis; it relieves every symptom, the oppression, the vascular tension; the kidneys resume work, peeling is arrested, and we are soon gratified with a copious secretion of urine free from albumen and tube casts. There are no cases but what are relieved, if not cured, by the action of this drug. Improvement inevitably follows.

BRIGHT'S DISEASE,

Or Chronic Desquamative Nephritis, or *Contracted Granular Kidney, or Gouty Kidney*, is a true interstitial degeneration, or breaking-down of the epithelium of the convoluted tubes; an exfoliation, or shedding, or peeling of the walls of vessels, which

lose their epithelial lining. They collapse, become filled up with broken-down debris or rubbish; choke up the tubes, and obstruct secretion. This interlobular death causes them to contract. Nature makes efforts at revival again and again; but this shedding of renal epithelium continues; and besides blocking up the kidney, appears in the urine in a more or less disintegrated form. The tubes lose their lining altogether, and either collapse or become filled up. This denuding process permits the liquor sanguinis, or serum, or albumen of the blood, to escape in the urine, so that the urine is persistently albuminous, of low specific gravity, and contains granular casts and epithelium.

Causes.—Impaired vital force, such as we find in tubercular and other states, in which nerve centres are feeble, may be a predisposing cause; but diseased germs, like malaria, the bacteria of erysipelas; the vibrios of typhoid fever; the amœba of catarrh; the oïdium albicans of diphtheria, germs of syphilis, and of other diseases, are exciting causes. Besides, in the left kidney, which is so freely covered with the sympathetic nerve, it may arise from mental exhaustion, or over-work, or worry, or struggle for existence. The indiscriminate use of such drugs as mercury, balsam copaiba, turpentine, cantharides, juniper berries, acetate of potassa, etc., often give rise to it. Bad living, constant exposure to wet and cold, to atmospheric changes, deleterious trades, and intemperance, are common causes. Out of every one hundred persons who indulge in beer and other alcoholic compounds, and thus lay the elements of gout and rheumatism in their blood, eighty per cent. are affected, more or less, with desquamative nephritis. The union, therefore, of the urate of soda, with lithic acid in a weakened kidney, or in gout, is the most common of all causes. In this enumeration, previous disease, blows, lifts, strains, etc., are not to be overlooked.

Symptoms.—As it is essentially chronic, it may exist in a mild form for many years without even being suspected; patient complaining of little or nothing but debility; but it moves on until this weakness becomes associated with loss of flesh, languor, lassitude, health gradually fails, insidiously and slowly, there are indications of giddiness or vertigo; specks or spots before the eyes; noises in the ears; skin, when closely inspected, has a uriferous look, and even smell; the conjunctiva has a pearly whiteness; tongue large, flabby, with longitudinal fissures or kindney-tracts; pulse feeble, extremities cold. No pain, usually, over region of kidneys; sometimes a sense of weight or weakness. Urine is free and copious, very pale, of a very low density, but persistently exhibits traces of albumen in large or small amounts; but it is loaded with epithelial casts and epithelium. Diseased action progresses onward; the above symptoms become aggravated in degree and in intensity; then dropsical symp-

toms appear; œdema of the ankle and feet, or puffing under the eyes, and anasarca and dropsy of one or more of the serous cavities; and by-and-by, with symptoms all the time growing worse, degeneration of the kidneys appear; or structural changes in the form of fatty or amyloid usurpation. The blood becomes very impure, loaded with urea; there is an innate or inherent power of resistance to the circulation of contaminated and deteriorated blood throughout the vessels whence arises the high tension in arteries; hypertrophy of the muscular coat of the arterioles, and enlargement of heart; often organic disease, especially valvular. This impure blood acts badly on the nerve centres; retinitis, and other signs of degeneration often appear.

The symptoms can be arranged under three heads. 1. Congestion of kidneys. 2. Obstruction and dropsy. 3. Degeneration. Through each the persistent presence of albumen in the urine is the leading feature with kidney casts. The anæmia, the uriniferous aspect and dropsy are more decided in second stage, and in the third, uræmia, from utter failure of the kidneys to eliminate urea, which poisons the brain and cord, and thus causes death; or hæmorrhage may take place into the brain, or some accidental condition may occur to cause death, as inflammation of lungs, heart, etc.

In explaining this high tension of arteries in Bright's disease, we must look at the grave changes that are going on. The changes in the kidney are interstitial death, or a breaking down; the broken-down debris causes compression and contraction of the nephritic cell, infiltration of its interlobular stroma. This falling in, or contraction of the capillary loops, causes them to be emptied; and being compressed, are rendered functionally useless. They either undergo simple atrophy, and become impervious, or are affected by degeneration, and converted into granular masses, which appear like gelatine. A rise in the blood pressure must necessarily follow, which acts directly in increasing the albuminous urine.

There are several factors that serve to determine a rise in the blood pressure during the stage of cell transformation and shrinking of the kidney. These are destruction of the capillaries, changes in the vessels themselves, in thickening of their walls, and degeneration of the kidney. Attempts at compensation are also initiated: the walls of the renal vessels, whose coats have undergone least alteration, become abnormally permeable, and thus permit the exudation of albuminous matter. There is also a perfect anastomosing of vessels of the kidney with the suprarenal and lumbar vessels. Thus a portion of the blood which should pass through the kidney, if healthy, is diverted, as it were, into other channels, by the locked flood-gates, and the stress of it thrown back upon the heart, so that the heart begins

to hypertrophy, in order to overcome the condition of obstruction. When hypertrophy is once established, it aids in overcoming the difficulty.

In the first stage, or interstitial cell infiltration, albumen in the urine is present in small quantities; whereas, in the second stage or cell transformation and contraction, it becomes abundant.

General Treatment.—Our attention should first be directed to general management: The appetite must be promoted in every conceivable form, with tonics, and digestion aided with pepsin; the most nutritious kind or quality of food recommended, as beef, mutton, game, poultry, boiled fish, eggs, milk, vegetables, and ripe fruit; and specially forbid sugar, fat, starch, alcohol, or malt liquors. The diet is to be generous and nutritious to a fault. The bowels to be evacuated daily. The skin should be attended to, with daily sponging, or tepid bathing, and its general warmth promoted by flannel clothing and a warm room of 75° Fah.

Over both kidneys, irritating plaster one week, ozonized clay the next, keeping up the rotation for six months after all traces of albumen and casts have disappeared. As it is a chronic disease, alteratives should be used all through—ozonized phyto-lacca, compound extracts of stillingia, corydalis, etc., with iodide of potass. These vegetable agents should be alternated with tonics, quinine, and mineral acids, bark, and acids, glycerite of ozone, ozone-water, etc. While pursuing the use of alteratives and tonics, change them once a week, so that the patient does not become habituated to any one drug. Besides adopting this general treatment, there must be a special course of remedies used to meet the three prominent indications:

To Arrest or Check the Flow of Albumen.—Some of the following remedies should be selected and tried, say, for forty-eight hours; and if no check, another substituted: Gallic acid, in fifteen-grain doses thrice daily, in a tablespoonful of port wine; tincture or infusion of digitalis, ten drops of the former, or wineglassful of the latter, thrice daily; iron in tincture, or iron-alum, oil of erigeron, ergot, matico, mineral acids.

To Remove Effusion, or Dropsy of the Cellular Tissue: Infusion of digitalis, followed by diaphoretics, diuretics, and hydragogue cathartics.

An infusion of digitalis, made fresh daily, as laid down, has a marked action on the brain, the heart, and arteries; it often arrests the escape of the albumen itself; it unlocks the absorbent system, and is a most serviceable drug. Many are, and have been, disappointed in its action, simply from inattention to its proper mode of infusion. It deserves a fair trial, properly prepared.

As to *diaphoretics*, let it be understood that diaphoresis relieves renal congestion. The alcoholic vapor bath thrice a week; the use of that prince of diaphoretics, pilocarpin, about as often hypodermically, in one-third-grain doses; external warmth.

As to *diuretics*, they are of undoubted utility, but must be carefully guarded. To restore, by remedies, the natural function of the kidneys, and wash out broken debris, we must restore the action of the kidneys, aid elimination, restore, if possible, the physiological process. Experience has demonstrated the utility of saline diuretics and digitalis in renal disease—such as cream of tartar, and nitrate potass, do not increase, but diminish the amount of albumen in the urine; they are to be preferred to other remedies; the obstructed tubuli uriniferi need flushing, and we must bring diuretics to the work.

As to *hydragogue cathartics*, or active purgatives, never to weaken strength, but to cause a quasi vicarious elimination of carbonate of ammonia from the alimentary canal, are of great efficacy, and tend to prolong life.

If successful in causing the disappearance of albumen and getting rid of dropsical effusions, the patient still on alteratives and tonics, the use of what are termed astringent diuretics should be commenced. These embrace such as buchu, uva ursi, pareira brava, queen of the meadow, cleavers, pipsissewa.

One of these selected, used for a few days, then another, selecting the two from which most benefit is derived, and administering alternately week about. These should be given in the form of infusion, and taken freely, as they have a very vitalizing action on the kidneys. Infused over night, and allowed to cool; made fresh every twenty-four hours. Any special disease, occurring during the progress of treatment, should be attended to. If the patient has been intemperate, or even slightly addicted to the use of malt liquors or whisky, there is the greatest tendency for the weakened kidney to take on fatty degeneration; if, however, he is merely tuberculous, the inherent tendency is to amyloid degeneration; when either takes place, the kidney, which is small and contracted in Bright's disease from interstitial death and caving in, may now become enlarged and flabby.

(1.) **Fatty Degeneraiton.**—Usually the result of desquamative nephritis, or Bright's disease. If it occurs without the precursory disease, intemperance and bad living may bring it about. Kidneys are usually large, pale, soft, doughy, and fatty.

Symptoms.—A recapitulation of all the symptoms enumerated in Bright's disease, but greatly aggravated; debility increases rapidly; the uriniferous aspect, palor, and anæmia much intensified; the pulse is now irritable and frequent; there is general cedema; puffiness of face and hands; frequent micturi-

tion; dyspepsia, with attacks of vomiting; a tendency to inflammation of the membranes of brain, pleura, peritonæum, pericardium, and amaurosis, due to albuminuria, retinitis, and degeneration; anasarca of the limbs and dropsy of the cavities. Indications of uræmic poisoning show themselves often in convulsions, coma, etc. The urine in fatty degeneration from the very commencement exhibits oil-globules, is very scanty, low specific gravity, and highly albuminous. There are also cast-cells filled with oil, presenting the appearance of dark, opaque masses, besides the oil-globules.

When the urine is highly albuminous and presents a large number of oil-casts and cells, the case is to be regarded as a serious one, as they indicate an intractable form of the malady.

(2.) **Amyloid Degeneration.**—Waxy, or starchy, or amyloid degeneration, is liable to occur in tubercular subjects affected with Bright's disease. The usurpation of the kidney by this substance renders it inefficient as a secreting organ, and ultimately useless. Kidney here becomes large, heavy; has a glistening appearance on section; turns blue or black color if touched with iodine and sulphuric acid.

Symptoms.—Great debility, with all the symptoms of Bright's diseases; if anything more lassitude, prostration, thirst, and usually an excessive secretion of urine highly albuminous, pale in color, acid reaction, of low specific gravity. Delicate, transparent, waxy, or hyaline tube-casts are to be seen, which are formed by the coagulation of an exudation from bloodvessels into tubules denuded of epithelium. There is the peculiar uriniferous odor and pallor of skin, eye, lips, and mouth. The urine decreases in quantity, but albumen increases. There is general œdema and anasarca; case progresses slowly but surely. Other organs, as the liver and spleen, become affected; sometimes deposits of starch on intestinal tract, which gives rise to diarrhœa, and waxy degeneration; dropsy of chest and abdomen; uræmia, with intoxication, or convulsions terminate the case.

Treatment.—When the case has reached the stage of degeneration, either fatty or amyloid, the greatest possible attention should be paid to diet. Let it be nutritious, and exclude all carbonaceous articles. The alcoholic vapor-bath every other day, and a free action of the bowels daily; warm clothing, external warmth in heated rooms. Over region of kidneys the ozonized clay operates very beneficially. A general course of vegetable alteratives and tonics, embracing specially ozonized compound phytolacca, glycerite of ozone, ozone-water, compound tincture cinchona and nitromuriatic acid, quinine, and aromatic sulphuric acid.

A sea voyage of a few months is always attended with the

most salutary results. The following remedies are used with very beneficial results:

Nitroglycerin.—A one per cent. solution of the nitroglycerin, given in one minim doses every half hour till its physiological effects are produced, and then continued at regular intervals in three minim doses thrice daily, the urine will become normal, entirely free from albumen, oil-globules, and waxy casts, and this after the case has almost been deemed hopeless. Whatever may be the pathological condition, it is unquestionably relieved by the nitroglycerin, and improvement immediately follows.

(3.) **Cystic Degeneration**.—There are usually four forms of degeneration met with in the kidney. Two of them follow as a natural sequel from Bright's disease: (1.) Cysts varying in size from a pin's-head to a hazel-nut are common, as a result of interstitial breaking down and obstruction. (2.) General cystic degeneration from atrophy and obstruction, and expansion or dilation of uriniferous tubes. (3.) Small cysts are often met with on the surface of the kidney, which do not interfere with its function in any way. Sometimes they attain a great size, and form an appreciable abdominal tumor. (4.) Congenital cysts, complete or incomplete, or kidneys made up of cysts without any trace of secreting tissue; usually combined with other malformations.

If the result of chronic desquamative nephritis, treatment same as for degeneration. In the other forms the symptoms are often obscure.

Uræmia.—Disease of the kidney, after going through its forms of inflammation and degeneration, has a tendency to terminate in anæmia, a form of blood poisoning due to the accumulation of urea in the blood, owing to the inability of the kidneys to eliminate. There are probably two forms of poisoning,—one in which carbonate of ammonia is formed from the decomposed urea; the other in which that decomposition does not occur. The anæmic condition of brain and spinal cord enables this poison to operate speedily in the production of irritation of the great nerve-centres, giving rise to coma, intoxication, delirium, convulsions, preceded by impaired vision, *obstinate vomiting, or diarrhœa. In uræmic coma the temperature is low; there is often twitching of muscles; rarely stertor, and at first patient can be roused; breath and skin has a uriniferous or ammoniacal odor.

DROPSY OF THE KIDNEY.

Hydronephrosis, or *Distension of the Kidney by a Fluid*.—May be congenital, or may result from obstruction of ureter by a calculi; or by tubercular or cancerous deposit, or from the presence of a tumor. The kidney is often converted into a

large pouch. It may be associated with suppuration of lining membrane of pelvis and calices.

Symptoms —If the other kidney is healthy and the distension is not great, the symptoms may be obscure. In other cases, when large, the tumor may be felt in the loin, reaching forward in the abdomen, has an undulating or fluctuating feel to the touch, and it may or may not be tender. If only one is affected, quantity of urine may be natural; if both are implicated, there will be likely suppression, partial or complete. It may contain pus if there is a stone or associated pyelitis; complete suppression, uræmia; attacks of nephralgia or nephritic colic if there is a calculi.

The treatment consists in rest, hot vapor-bath, poultices of lobelia and belladonna over loins, marsh mallow tea, and nitre, to force offending body forward.

CANCER OF THE KIDNEY.

The deposit or localization of the cancer-germ in the kidneys, is a rare affection. When it does occur, it is usually on its cortical substance, and extends inwards, usurping the proper texture of the gland.

In its very incipient stage it may be readily recognized by the cachexia, by the pain, anterior, and posterior. The growth of cancer-germs, when fully started, often becomes immense, so that they often attain an enormous size, filling up the abdominal cavity. The chief symptoms, besides the pain and diathesis, are the enlargement of the gland, hæmaturia, sickness, emaciation, anasarca.

General treatment, but especially large doses of conium and opium, to relieve pain. A lotion of sulphate of manganese over the kidneys, with a liberal use of the ozonized extract of saxifraga.

TUBERCLE OF THE KIDNEY.

In very rare cases of persons affected with tubercle do we find a deposit in the kidney. When it does occur, it is very uncommon for it to be detected during life. Both kidneys are usually implicated, and it is generally the case when it occurs that the ureters and bladder are also involved. When the germ is active, large cavities are produced by them eating out the renal tissue. There is no pain, often hæmaturia, and pus, in large quantities, and tubercle, can be found copiously in urine. Besides, there are the general indications of tuberculosis, in addition to those of renal disease.

If germs are not discharged it is likely to cause death by anæmia, uræmia, or ichorrhæmia.

PARASITES IN THE KIDNEY.

There are four varieties of entozoa that infest the human kidneys:

(1.) **Hydatids.**—Sacs formed from condensation of surrounding tissue, lined by a bladder or cyst, and filled with a limpid, salt fluid, floating in which are found numerous small bladders, which contain the entozoa known as the echinococcus, which is the immature tape-worm that infests the dog. These cysts are often discharged in the urine, and their passage produces symptoms like those caused by a calculus. Recovery may take place, or cysts may be discharged for years and years, and wear out vital force by irritation, inflammation, and suppuration.

(2.) **Distoma Hæmatobium.**—Endemic to the residents along the Mississippi, and giving rise to the hæmaturia of intermittent fever.

(3.) **Tetrastoma Renale**—Infests the uriniferous tubes.

(4.) **Strongylas Gigas.**—This is very rare.

The larva of these different parasites find ingress to the body chiefly by water, and breed in this special part of the organism.

Treatment.—Mineral acids and cinchona, glycerite of ozone, sulphuric acid.

DIURESIS.

A condition in which a quantity of pale, limpid, urine is secreted, free from sugar or other abnormal ingredient; the amount is to be excessive to constitute the condition. The term *Polyuria* is applied to it, provided the large quantity contain an absolute and relative increase of urea.

The cause is some reflected nervous irritation, like hysteria or hyperæmia.

Symptoms.—Are insatiable thirst, with excretion of large quantity of urine. The watery constituents are increased excessively, and specific gravity is low. General health suffers; the excessive thirst and frequent micturition cause bad nights. Dropsy may set in if not relieved.

In some cases there is an excess of urine over amount of liquids taken; in that case, the body must waste and lose its water, or water is formed in the body by direct union of its elements—oxygen and hydrogen.

Treatment.—General attention to the laws of life—diet, baths, clothing; remove any source of nervous irritation. Then try nervines, such as glycerite of kepheline or ozone; fluid extract sumbul, scutillaria, nux vomica and cinchona, or valerian in tincture or phosphate of iron and valerianate of zinc. Under one or other of those nervines mental and bodily vigor rapidly improves. Unless this view of diuresis is accepted and followed

up, our treatment will be unsatisfactory. The intense thirst and discomfort can only be relieved by toning up the nervous system. Drugs like valerian are highly efficacious—especially in the dual form of tincture and valerianate of zinc.

Enforced abstinence from fluids useless.

CHYLURIA.

Chylous urine, or the excretion of urine of a milky appearance from the presence of fatty matter in a molecular state. In addition, there is generally present liquor sanguinis, blood-corpuscles, fibrin, and albumen. The urine, after standing a little while, coagulates into a trembling mass resembling common size or blanc mange. Common in tropical latitudes, and is associated, not always, but in many instances, with the filaria in the blood.

Associated with this condition of the urine there is great lassitude and debility; pains about loins and stomach; very great mental anxiety; loss of flesh. It is usually intermittent in its nature; chylous for months; healthy for same space of time, and then recur on and on.

Treatment.—Sea air, salt-water baths, very nourishing diet; flannel roller over abdomen; compound tincture cinchona and mineral acids; quinine and aromatic sulphuric acid, and general tonics and alteratives.

HÆMATURIA.

Bloody urine, or hæmorrhage from the mucous membrane of the urinary passages, the kidneys, bladder, urethra.

Causes.—It may be a symptom of acute inflammation of the kidneys; or arise from the germs of malaria, causing irritation or morbid states of the blood; strains, blows, stone in, or cancer of, the kidney, etc.

Symptoms.—Urine smoky, or of a port wine tint; albumen present. When from the kidney, it is generally diffused through the urine; when from bladder or urethra, blood comes away after passing clear urine. Blood-casts of renal tubes, cancer-cells, or renal calculi.

Hæmaturia very often present in Southern ague; it may occur paroxysmally with the fit.

Strong liability to hæmaturia in purpura, scurvy, or white cell-blood; comes on from the slightest cold or exertion; also a symptom in bilious, remittent, and yellow fevers; and in or among the inhabitants of those localities where such prevail, it is endemic.

Treatment.—This will depend on cause. If due to some diathesis, or ague, quinine and mineral acids; if due to inflammation, digitalis and gelsemium; if due to scurvy or purpura,

mineral acids, cinchona, and digitalis; if no cause can be assigned, styptics, as gallic acid, or perchloride of iron, or ergotin, or infusion of matico, followed with one or other of the astringent diuretics, as buchu or uva ursi; but in all cases insist upon absolute rest in recumbent posture in bed, with dry heat over kidneys; or mustard, followed by irritating plasters, with active state of bowels and skin.

If from the bladder, the sulphuric acid turpentine mixture is invaluable, with hot poultices; in mild cases, gallic acid and astringent diuretics, as pipsin.

If from the urethra, large doses of green root tincture gelsemium, and camphor; the local application of cold.

RED GRAVEL, OR URIC ACID DIATHESIS.

In health the urine is very slightly acid, but very nearly neutral; but when there is disease, when the co-ordinating chemical centre is damaged or weakened, there is a perversion in nutrition, and the urine will be found acid. The acid diathesis, then, is a state in which the nerve-centres are impaired, and the starchy or saccharine elements of the food are changed into uric acid instead of fulfilling the purposes of nutrition.

Causes.—The causes that act upon the co-ordinating chemical centre in producing this faulty condition of digestion and assimilation are numerous, as monotony of life, isolation, solitary confinement, sameness of diet and habits; mucous dyspepsia, disease of the liver, and pancreas; imperfect æration of blood by skin and lungs; rapid oxydation of the fibrin of the blood, as we have in fever and inflammation; excessive muscular exercise; the lactic acid of rheumatism is changed for the purpose of elimination into uric acid.

Symptoms.—It is to be recognized by the persistent and more or less copious deposit in the urine of a brick-dust sediment; it may be only a few grains, and in some cases it is quite considerable. In mild cases, it may not appear till urine has cooled; in more severe forms, it is deposited at once. There is always associated with it depression of the nervous system, in some cases amounting to prostration; undefined sensations of irritation in the loins; sometimes excruciating pain in the kidneys; nausea, vomiting, aching in the thighs; retraction of the testicles; irritation of ovary; itching at the orifice of the urethra; irritable bladder, with continence or incontinence of urine. The passage of the urine causes a burning or smarting sensation; and when the uric acid crystals are large, a cutting, tearing sensation, as if particles of glass were being passed, with bearing-down and prostration.

Treatment.—Special attention should be made to give the patient immediate relief, and this can only be done by the

administration of alkalies, a class of remedies whose use is likely to be detrimental if administered for any length of time; still, for a few days, they had better be given, say, five or ten grains of bicarbonate of potassa thrice daily. While thus affording temporary relief, proceed to the removal of cause,—sameness, monotony, isolation; inculcate change of habits, diet, of everything that savors of sameness or monotony, for a high grade of mental and physical existence can only be attained by change. The essential elements of life is incessant change; and in order that the highest state of existence may be procured, this must be attained. The make-up of the tissues of the body exhibits that fact; the fresher they are, the more complete their change; provided construction exceeds destruction, the more serviceable they are. The secretions are to be regulated; daily tepid alkaline bathing; flannel clothing; moderate exercise in the open air; diet is to be variable but nutritious, rigidly forbidding fat, malt and spiritous liquors, sugar, or starchy agents.

In the medical treatment, vegetable alteratives and tonics are always of the greatest efficacy.

Discontinue the alkali, and substitute benzoic acid in ten-grain doses, with same amount of borax, for the purpose of changing the uric acid into a non-irritating agent in the body. If for some cause it is not thought best to give the benzoic, substitute the salicylate of soda, which is a remedy of the greatest efficacy. This remedy has the effect of improving or restoring the tone of the co-ordinating chemical centre, and preventing the formation of the acid, and also of chemically causing its disintegration.

Sulphate and phosphate of quinia are also valuable, but possess none of the chemical properties of the salicylates.

Besides the above, a course of alteratives and tonics for a few months, embracing compound extract saxifraga, ozone-water, glycerite of ozone, and kephaline.

WHITE GRAVEL, OR THE PHOSPHATIC DIATHESIS.

This is a cachexia in which the urine is persistently loaded with phosphates and chlorides, which are deposited in the form of a floury mass, or white, gritty substance, calcareous in its character, called white gravel. The urine may or may not be alkaline.

When human urine becomes alkaline, it is due to one or other of the following conditions: To excess of the alkaline carbonates of potassa and soda, which is apt to occur after a meal, especially of fruit and vegetables; to excessive elimination of the phosphates, as in brain and bone waste; to the formation of ammonia in the urine from decomposition of urea.

The reaction of the healthy urine in the twenty-four hours is slightly acid; but if separate samples are taken at different intervals, great variation is observed; and these are constant. The acid reaction increases and diminishes, commonly, with the secretion of gastric juice,—acid before a meal, alkaline after and during digestion. This is called the alkaline tide, and may be caused by the entering of newly-digested products into the blood, or a preponderance of alkaline bases in articles of diet.

There is another channel by which acid is withdrawn from the blood besides the gastric juice secretion, and that is by the lungs. The exhalation of carbonic acid gas by the lungs is increased by food and the conscious state, and diminished by fasting and sleep.

The urine need not, however, be alkaline, in the phosphatic diathesis; it is sufficient, in order to constitute this condition, that there be an excessive elimination of brain elements, that it be loaded with phosphates, the metamorphosis of such tissue.

Causes.—Cerebral exhaustion, shattered nervous system, nervous disease, nervous dyspepsia, chronic disease, irritation transmitted, study, worry, gout, sexual excesses, etc.

Symptoms.—The general indications are those of an intense nervous temperament; white skin; sharp features; emaciation; some chronic or nervous disease. There is no pain or irritation whatever; hence it is often unobserved by the patient; so there are few symptoms but the amount of gravel present in the urine each twenty-four hours, which, grain for grain, represents so much waste of brain-tissue, just as the uric acid represents fibrin, muscle, etc. If the alkaline condition be present, it is due to two causes: either from the presence of the carbonate of a fixed alkali (potash or soda), or of the alkaline phosphate of sodium; or from the presence of the carbonate of the volatile alkali, ammonia, which is due to the decomposition of urea.

The white gravel that is deposited in the last, the decomposition of urea, is formed as follows: Healthy urine contains phosphate of magnesium in a state of solution; if the urine becomes alkaline from decomposition of urea, a portion of the ammonia combines with the phosphate of magnesium and forms a triple salt, which is insoluble in the urine. This triple phosphate is usually an admixture of phosphate of lime. Urine of this kind, being allowed to settle, a scum forms on its surface, which, under the microscope, resembles the salts we have described. But the urine may become alkaline from the presence of the carbonate of potassa or soda. and then, no ammonia being present, instead of the triple salt, there is a deposit of amorphous phosphate of lime. In these cases the urine is generally alkaline, pale, copious, slightly turbid, of a low specific gravity, and of a peculiar odor.

Treatment.—Generous diet; daily bathing; flannel clothing; well-regulated secretions; the treatment of the morbid condition upon which it depends, and a resort to general alteratives and tonics.

OXALIC ACID DIATHESIS—OXALURIA.

When the co ordinating chemical centre is further enfeebled by some nervous disease, alloxan is formed in sufficient quantity to combine with glycogen and prevent the formation of other substances; oxalic acid is formed, and appears in the urine. Now, this diathesis is dependent upon very great nervous prostration, especially in the nerve-centre and nerves that supply the lungs, stomach, pancreas, and liver. Generally found in old cases of chronic bronchitis or nervous dyspepsia, and is characterized by the persistent appearance of crystals of oxale of lime in the urine.

Rhubarb may cause a temporary appearance of oxalic acid, which disappears as this vegetable is discarded or discontinued.

The crystals appear in the form of minute, transparent octahedra, or like dumb-bells.

The persistent presence of oxalic acid in the urine, indicates the very low state of vital power, and is very liable to give rise to two distinct and dangerous complications:

(1.) A concretion of oxalate of lime (mulberry calculus) may form, either in the kidney, bladder, or prostate.

(2.) The poisonous action of oxalic acid in the blood is liable to produce irreparable lesions in the brain, heart, stomach, etc.

Treatment.—Great attention should be paid to diet. It should be generous, consisting of animal food, eggs, fish, milk, etc.; all articles that contain oxalic acid, as rhubarb, sorrel, tomatoes, sugar, etc., be forbidden; daily shower-baths, followed by friction; flannel clothing. Vegetable alteratives and tonics should be administered. Our best tonics are iron, cinchona, hydrastis; muriatic acid in compound tincture cinchona is invaluable.

The above three states are what is understood when we use the term "gravel," being the passage of one or other of those three bodies in the form of a gritty powder, or sand-like bodies, or small calculi, occasioning pain, irritation of kidneys, ureters, bladder, and urethra.

Of those three principal forms, the uric acid is present in about eighty per cent. of all cases, and gives rise to more irritation than either of the other two forms. All ages and both sexes are liable to be affected. They often give rise to nephralgia or neuralgia of the kidneys.

In order to relieve this condition promptly, hot baths, hip-baths, hot fomentations to loins; open bowels with salines, and

administer copious drinks of linseed tea, or infusion of marsh mallow, with alkaline diuretics, as nitrate of potassa in cider, or lemonade of cream of tartar.

NEPHRALGIA OR NEURALGIA OF KIDNEY.

Often due to gravel, or disease-germs, like malaria; to drugs; to suppression of an eruption; in the left kidney to poisons of rheumatism; gout, cold, wet.

It is attended with most excruciating suffering; sharp lancinating pains, coming on suddenly, violent in intensity, relieved by pressure, never aggravated by it. If due to gravel, it may be continuous, beginning at the time it commenced to pass into the ureters, and continuing till it reached the bladder. The pain is paroxysmal in its character, not only experienced in the loins, but extends to the groin, thigh, or abdomen, causing retraction of the testicle in the male, and irritation of ovary in the female. If the paroxysms are severe, they may be accompanied with nausea and vomiting; a small, wiry, feeble pulse; profuse perspiration; prostration, with a desire to pass urine, and an inability to do so. When concretion, if due to that, reaches the bladder, pain suddenly ceases; if due to other causes, it may continue till the cause is removed. Its location, (relieved by pressure), character of pain being paroxysmal, with other symptoms of kidney irritation, are always important land-marks.

In the treatment, alcoholic vapor-bath; external warmth over kidneys; if stomach is so irritable as to cause everything to be rejected, apply mustard over it, and give a large dose of tincture of green root of gelsemium; if vomiting still persists, hypodermic injection of morphia, preceded by the inhalation of a few drops of chloroform. Then apply belladonna plaster over kidneys, and depend on quinine and gelsemium internally. In some cases aconite and belladonna answer well, with dry cups and lobelia fomentations. If due to the retrocession of an eruption, compound tincture serpentaria or jaborandi; if due to rheumatism, alkalies, as nitrate of potassa and cream of tartar. Each case managed as to its cause.

RED AND WHITE GRAVEL IN CHILDREN.

Gravel, or ultimately, stone in the bladder and kidneys of children, is far from uncommon; less frequent in the kidney in childhood than in advanced life. The passage of a red, sandy substance, or uric acid, from the bladder of children, is common, and too little attention is paid to it. It is very likely to occur if the little one eats to excess of any kind of food, animal or vegetable, but more especially farinaceous and saccharine; or if not regularly bathed, or does not receive a sufficient quantity of pure air. Besides, tubercular or gouty children have a much

greater tendency to it than others, irrespective of excess or unwholesome diet; and those who are kept in-doors, under a monotonous state, cold, damp, and influences that interfere with assimilation, as fear, grief, depressing passion, fatigue, febrile states.

The uric acid may just be enough to stain linen, or it may be a copious brick-dust sediment, in crystalline particles. In infants and young children there is a special tendency to the formation of uric acid deposits, and these are often thrown down in the kidney before the urine has passed into the bladder. The so-called uric acid infarctions of the kidney are often found after death in mere babes. These infarctions consist of urate of ammonia mixed with crystals of uric acid, and occupy the straight tubes of the pyramids of the kidney. In addition to the causes enumerated, the excessive feeding of young babies, and to the use of starch, which should be shunned as a poison, there is in the young that excessive metamorphosis of tissue in their bodies which is great in digestion, respiration, and heat formation, so that they are peculiarly liable to deposits in any part of the urinary apparatus, in the kidneys and bladder; and once a deposit takes place, it is liable to become enlarged by successive additions or aggregations to the original point. Great irritation is often caused, and much untold suffering to the little one, by the presence and passage of those minute crystalline bodies, which are sharp like glass crystals, and cut and scratch the delicate lining of the kidneys, and even cause blood to appear in the urine, although the admixture of blood is comparatively rare.

Besides the acid deposits, we meet with more rarely the limy or white gravel, which, in its passage, does not irritate, even though so copious as to render the urine thick, milky, and form concretions of the oxalate of lime, which, if small, are easily passed, because they are rounded off, but when the red gravel is passed the child screams and strains during its passage; and if old enough, complains of pain in the back and urethra; and the pain is so excruciating in some cases as to cause convulsions. When the red gravel is freely passed it is likely to be found on the infant's diaper, or in the form of red sand in the bottom of the chamber-pan. It is this form that gives rise to incontinence of urine, in the wetting of the bed at night.

When these crystals are any size, and lodged in the kidney, there is likely to be blood in the urine. Hæmaturia in infants is generally due to this cause. Calculus often exists in babes without a single symptom to indicate it, until it passes by the ureter into the bladder. The frequency of uric acid concretions in the urine of children depends on their diet, bathing, and atmosphere; if starch-fed, every one is affected.

The occasional appearance of uric acid in babies and children is always of importance, and should be looked after; their food, and conditions under which they are living be attended to by a variation of diet; no starch, nor sweets, nor cakes; daily bathing, open air exercise; and dressed from head to foot in flannel or silk; bed-room well ventilated, and never undressed only in a warm room. If, from the character of the urine and peevish irritability of the child, or actual distress in urination, a deposit is suspected, give citrate of potash and phosphate of soda, in sufficient doses to render the urine alkaline. Hydrangea should also be given; and this treatment persevered with in the hope of dissolving the concretion, or reducing its size, so as to enable it, if in the kidney, to pass through the ureters; if in the bladder, to pass by the urethra.

If the child is a few years old, a more extended line of remedies should be resorted to: infusions of asparagus, or eating the cooked tops, if in season, are excellent; uva ursi, nitric acid, and compound tincture cinchona; but as a general rule, the hydrangea is a sovereign remedy for the breaking-up of the stone, if it exists; and if it can be persevered with there is the best hopes of success.

URINARY CALCULI, OR STONE.

These concretions are found in the kidneys, bladder, and follicles of the prostate gland; when found in the ureters or urethra, they have floated there from the other parts. Calculous disease is much more common in males than in females, probably owing to the anatomical character of urethra: in women, being short, from one and a quarter to two and a half inches long, and very dilatable; whereas, in men, it is long, and not dilatable to any great extent. The cause is the uric acid, phosphatic or oxalic acid diathesis; so that these concretions are usually found to consist of uric acid, urate of ammonia, fusible calculus, (phosphate of lime, magnesia, and ammonia); mulberry calculus, (oxalate of lime), carbonate of lime, and, very rare forms, cystic and xanthic oxydes.

Calculi may consist of only one substance, or be made up of layers, of different salts; they may vary in size from grains of sand-like bodies, to gritty gravel, up to the size of an orange; once a nuclei being formed, they increase in size by aggregation.

Small aggregations, or stones in the kidney, if not much larger than a kidney-bean, may pass from the pelvis of the kidney into the ureters, and thence into the bladder. The suffering which takes place in the transit of the stone is very great, and popularly known as an attack of gravel. As soon as calculus reaches the bladder, instant relief.

How to Diagnose a Stone in Kidney, and its Character.

—There will be severe backache; traces of pus in the urine. After exercise, especially on horseback, bloody urine. There will likely, if stone is any size, be epithelium of the pelvis of the kidney, as well as blood corpuscles. The diathesis will guide us as to the kind of stone. But the nervous irritation is so great, in all cases, that if it begins as uric acid, it at once becomes phosphatic; the reflex nervous irritation creates that diathesis. Health suffers, loses strength and flesh. Stone gradually becomes larger; excites suppuration; fills up the body of kidneys, and renders them useless as secreting organs, and gives rise to uræmia. In addition to the above, there are the minor symptoms of kidney irritation; itching at the orifice of urethra, aching in thighs, retraction of testicle.

Passage of Stone into and through the Ureters.—A patient suffering from the above symptoms has a sudden seizure of intense pain in the kidney, with nausea, vomiting, and great prostration; a partial suppression of urine; symptoms increase; pain moves down along the course of the ureters, and the moment stone drops into the bladder all is well. In addition to the above, there may be all the indications of kidney irritation, and even hæmaturia.

Indications of the Presence of a Stone in the Bladder.—

Severe attacks of pain in the bladder, perinæum, and at glans penis, either brought on or aggravated by exercise. Frequent micturition from the irritable bladder, or there may be continence or incontinence of urine; or even if patient can make water freely, there is a feeling as if bladder was not thoroughly emptied in the act of urinating. Urine is likely to contain pus to a greater or less extent, often thick, ropy, tenacious, mucopurulent matter, and perhaps blood. Always blood corpuscles and vesical epithelium under microscope. The act of micturition suddenly stopped, in large percentage of cases, by stone being forced against the neck of the bladder, when, if the patient suddenly throws himself upon his hands and knees, thus causing the stone to move away, the flow of urine returns; tenesmus, prolapsus of the rectum, very common. None of those symptoms are to be positively relied on, not one, until a metallic sound or silver catheter is introduced, when the bladder is full, and the stone felt by its impulse on the fingers, and the peculiar click is heard by the ear. One examination should not suffice, it should be made at least three times, on different days, before a final opinion is given.

Treatment of Stone in the Kidney, if Uric Acid or Red Gravel is the Cause.—Plain, nourishing food, milk, eggs, fish, animal food; nothing to increase uric acid; avoid alcohol; mucilaginous drinks, linseed tea, infusion of marsh mallow;

daily bathing, flannel clothing; belladonna plaster over kidneys; check hæmorrhage; alteratives and tonics, selecting saxifraga, hydrangea, iodide potass, solution of potassa, citrate of potash in alternation with nitric acid in compound tincture cinchona, benzoic acid and borax. To relieve pain, if it drops into ureters, inhale a little chloroform. When patient feels slightly exhilarated, follow with hyperdermic injection of morphia, and discontinue the chloroform.

If the Stone has reached the Bladder, and is small, patient might be encouraged to take copious warm mucilaginous drinks, with nitrate of potass and cream of tartar; go into a hot bath; take a large dose of tincture of green root gelsemium; dry off; smear perinæum with extract of belladonna; let urine accumulate, and then discharge it forcibly. If that fail, an attempt might be made to dissolve it, if acid, by injecting alkalies or alkaline solutions; if a phosphatic calculi, acid solutions. Injecting solvents in the bladder must be done carefully; the water must be tepid, and not too strong of either the alkali or the acid—just strength enough for stomach: the liquor potassa, say a drachm to four ounces of water; nitric acid dilute, from fifteen to thirty drops to four ounces; used about three times per week. At the same time the patient should be placed upon an alterative and tonic course, with iodide potass in a vegetable alterative, and nitric acid in compound tincture cinchona as a preference. In the interval, patient should be encouraged to drink freely of an infusion of hydrangea and saxafragica—two remedies of great value in causing the disintegration of all calculi, especially the phosphatic; they are true solvents, causing the stone to break down into a mealy powder, which is easily passed by the urethra. Their action is purely chemical; they perform what no other remedy or combination of remedies can perform. Their best effects are to be obtained by infusion; fluid extracts become worthless; ozone-water has a powerful effect on the more solid forms, and reduces them to a pulp, which is gradually eliminated by the urine.

Disease of the Suprarenal Capsules.—A tubercular deposit in the suprarenal capsules, which gives rise to excessive anæmia, with bronzing of the skin. It is supposed to bear a strong analogy to the white cell disease present in enlargement of the lymphatics and induration and hyperthropy of the spleen; that the suprarenal capsules evidently aid in the elaboration of red blood, or that the great co-ordinating chemical centre at the base of the brain is at fault. One thing is certain, that in the pigmentary gland of the skin there is a secretion of indicum, which, by the action of the oxygen in the atmosphere, becomes charged with a bronze color. The obscurity that surrounds the

disease has not been dispelled by modern investigation on the subject.

The cause of disease in these capsules is unknown.

Symptoms.—Comes on very gradually; failing health, debility, languor, loss of appetite, feeble pulse, irritability of stomach, progressive emaciation; paroxysms of gastric irritability, and vomiting, with faintness, which indicate disturbance of the brain. There is usually a persistence of albumen in the urine; a gradual discoloration of skin, most marked about face, hands, neck, arms, circumference of navel, gradually becoming of a dingy, bronzed, or smoky hue. The discoloration is not present in all cases. Dark patches on the mucous membrane of the mouth often present. The chief characteristics of the infiltration of the suprarenal capsules are extreme exhaustion, sinking, anæmia, albuminuria, and discoloration.

As our knowledge of the disease is so unsatisfactory, all that can be done in treatment is to maintain vital power, with good food; relieve the prominent symptoms, administer alteratives and tonics; apply ozonized clay over region of capsules. In spite of everything our best means are baffled, death taking place from extreme anæmia in about eighteen months.

ACUTE INFLAMMATION OF THE BLADDER.

A partial death of the bladder may arise from the use of such drugs as cantharides, turpentine; from mechanical irritation, as calculi; introduction of instruments; or by ignorant use of forceps during parturition; external injuries, or blows, falls, concussions; from disease of the rectum, vagina, uterus, prostate, especially inflammation of those organs; to gonorrhœa and other poisons; to the use of injections.

Symptoms.—Commences with rigors and a fever, heat, pulse and respiration greatly increased; wiry pulse; pain over region of bladder; intense heat of urethra and base of the bladder, where inflammation is most intense; constant desire to make water, which comes away in little dribs; great mental depression, and constitutional disturbance becomes greater; nausea; vomiting. Bladder can be felt as a small, rounded, tender tumor. Severe pain, extending to perinæum and down the thighs; increased by pressure, rectal or vaginal examination. Tenesmus, unless patient is relieved, pain becomes unbearable. The calls to micturate become constant; urine is expelled drop by drop, or there is retention; urine becomes fetid and alkaline, containing shreds of lymph, fibrin, entangling pus, and blood-corpuscles; great prostration; cold, clammy sweats; cadaverous appearance; low muttering delirium; fatal exhaustion.

Its duration is from one to two weeks. Gangrene of bladder

liable to occur. When well managed the symptoms subside, and the inflammation terminates in resolution or recovery.

Treatment.—Patient is usually found on back with knees drawn up—a most convenient position for the application of stimulants; apply over region of bladder, first mustard, and then hot linseed meal poultices, made with glycerin. If possible, empty bowels with oil; if not, with enemata of infusion of marsh mallow and opium. If vomiting is persistent, apply mustard over stomach, and begin at once with pretty large doses of tincture of green root of gelsemium and pulverized opium; administer in small doses until there is a perfect alleviation of pain, and if necessary push to narcotism. If that takes place, patient must be turned over on right side. Incorporate tincture of opium in poultice, and introduce suppositories of opium and belladonna per rectum. Drinks to consist of infusion of linseed or marsh mallow, with nitrate of potassa and cream of tartar, enough to keep urine alkaline. If indications are bad, dissolve one or two grains of sulphate of morphia in one ounce of tepid water, and inject into bladder. If exhaustion is predominant, cream, raw eggs, essence of beef, etc.

As soon as symptoms of inflammation have subsided, put patient upon compound tincture cinchona and nitric acid, or aromatic sulphuric acid and quinine, with an infusion of one or other of the astringent diuretics, as buchu, uva ursi, queen of the meadow, pareira brava, cleavers, pipsissewa, as a drink; the idea being to restore the tone and vigor of the bladder. If convalescence is slow, alteratives. The greatest possible attention should be paid to diet; let it be most nutritious, avoiding fat, sugar, starch, malt or spiritous liquors, or anything likely to cause acidity. The skin should be well stimulated by alkaline sponging daily, and the constant use of flannel.

CHRONIC INFLAMMATION OF THE BLADDER.

Catarrh of the bladder is the most common form of inflammation. It may follow an acute attack; more frequently it is due to gout, rheumatism, venereal diseases, or excesses; damp, cold, exposure; foreign bodies in the bladder; retention of decomposing urine, or urine charged with uric acid crystals; excessive drinking; certain drugs, as cantharides, balsam copaiba; extension of inflammation from rectum, prostate, or uterus; to the natural decay of age.

Symptoms.—Besides a general feeling of debility or indisposition, there is an urgent desire to void urine frequently, with pain in the urethra. Tension and increased sensibility of the walls of the bladder; often distension from an accumulation of urine; mucus in urine greatly augmented, and of an unnatural color; first it is gray, then yellowish or greenish, thick, viscid,

ropy or streaked with blood. When ulceration sets in, urine is loaded with pus. This is the true characteristic of the affection. The quantity of this muco-purulent matter is often immense, averaging several pints a day.

If permitted to progress, the strength greatly diminishes, rapid emaciation takes place, and hectic.

In the early stages, under proper treatment, recovery may take place; but if there is a large amount of ropy pus, indicating extensive ulceration, and vital force much impaired, a favorable termination may not take place.

Treatment.—Indispensable to a successful medical treatment, is the very best of food of the most nourishing character; daily bathing, flannel clothing, external warmth; bowels regulated to one motion a day. An alterative and tonic course all through; such alteratives as ozonized phytolacca or saxifraga; compound syrup stillingia and iodide potass, or ozonized glycerin; tonics, compound tincture cinchona and nitromuriatic acid, or aromatic sulphuric acid and quinine, or collinsonia, bayberry, and hydrastis. While pursuing the alterative and chronic course, alteratives two hours after meals, tonics before meals. The patient at convenient intervals during the day and evening should drink infusions of one or other of the astringent diuretics, either buchu or uva ursi, pareira brava, queen of the meadow, couch grass, pipsissewa, cleavers. Whichever two diminishes the muco-purulent matter in the urine should be selected as the best; remedies to be changed weekly. If patient cannot empty bladder, draw off with catheter, and wash out bladder with infusion of hydrastis and borax, or bayberry and opium. Urine very acid, equal parts of cubebs and cream of tartar, or infusion of linseed and sweet spirits of nitre, to be taken. If there are either continence or incontinence of urine, a suppository of belladonna and opium at bedtime. Drinks to be of a demulcent character, and to be taken sparingly. Any pain over bladder, apply ozonized clay during the night, and poultice during the day. Alcoholic drinks to be forbidden. If the urine is loaded with, or even exhibits traces, of cancergerms, tubercle, amoeba, or the yeast fungus, inject into the bladder an infusion of wild indigo and borax, and administer ozone-water internally. Patience and close perseverance to the above treatment will usually result in a good cure.

INCONTINENCE AND CONTINENCE OF URINE.

The sphincter muscle of the bladder is liable to suffer partial or complete loss of tone, or paralysis. This may occur with a condition of relaxation or a state of contraction, hence the terms incontinence and continence of urine. The cause in either is inherent weakness of organization, or some irritation.

Either may occur in the old or young; rarely during middle life.

(1.) **Incontinence in the Young.**—Incontinence, or inability to hold the urine, so that it flows or dribbles away during the day or night, is the most common, and may depend on disease of the kidneys, or gravel, or the uric acid diathesis, or to the presence of urates in the urine; cold; wet; seat-worms; long, contracted, foreskin; falls or blows on the back; nervous debility.

In young children it is favored by excessive drinking of fluids during the day; by being put to bed between cold sheets; by lying on the back, a position that causes passive congestion of the lower part of the cord, and very unfavorable for retention of urine, especially when the natural sensibility of the mucous coat of the bladder is increased. It may also be caused by habit, fright, fear, or passion. When due to inherent weakness of organization, the difficulty seems to be entirely limited to the nerves of the sphincter muscle, impairing power of contraction.

Treatment.—The treatment is very simple: daily bathing; flannel clothing; to sleep between warm blankets; diet to be of the best and most nutritious kind; bladder to be emptied before retiring to bed, and child instructed to retain it during the day; either the application of a strengthening plaster, or, in some cases, a belladonna plaster, over loins or sacrum, and precautions taken to keep the child, if possible, on right side, and have him waked up before the regular hour of retiring to have bladder emptied, and every means resorted to to restore tone and strength to the system. All causes, such as seat-worms, long prepuce, etc., should be removed. First of all, try tincture of iron in alternation with tincture of belladonna. Regulate dose to age; then try sulphate of cinchona in alternation with wine of ergot; or tincture cinchonia compound and collinsonia. If due to acidity, the mal-nutrition to be corrected by tonics, changes of diet, open-air exercise, etc.

Incontinence in the aged is generally due to sexual excesses; enlargement or degeneration of prostate; a breaking-down of the nervous system; nervous disease, especially affecting lower portion of the cord; to uric acid, or oxalate in urine; stone in the bladder; disease of the walls of the bladder; piles, falling of rectum, stricture of the urethra, vascular tumors of rectum, ovarian or uterine diseases or displacements, pregnancy, coition, hysteria, etc.

If the cause admits of removal, get rid of it, and place patient upon alteratives and tonics; inculcate daily shower-baths, good food, flannel clothing, stimulating plasters to loins; if due to sexual excesses and nervous debility, rich phosphatic diet, glycerin of kephaline, or ozone; tincture damiana compound,

and if prostate is enlarged, infusions of hydrangea and saxifraga. Sulphate of quinine, iron by hydrogen, and extract of nux pill are very valuable here, in conjunction with the general and alterative course. The use of phosphorus-water, phosphorus pill, in fat, tincture or infusion of phosphorus, are to be forbidden, as they tend to fatty degeneration, not only of the heart, but erectile fibres of penis, and hasten prostatic degeneration.

(2.) Continenence of Urine in the Young.—An inability to urinate, from contraction of the sphincter muscle of the bladder, is common in children, and arises from the same causes that give rise to incontinence, inherent weakness of organization, tuberculæ, acidity, cold, wet, fright, etc.

In the treatment, remove the cause, and then try the warm hip-bath; hot poultices of roasted onions, crushed, to pubes and perinæum; administer warm linseed tea, with nitrate of potassa and cream of tartar; cause the imitation of a stream of urine, by pouring a quart of water through narrow tube of coffee-pot into water and within hearing of patient. All failing, steam buttocks with hot water and tobacco; use injection into rectum of water with belladonna; administer lobelia and belladonna internally. If all fail, the urine must not be permitted to remain in the bladder over a few hours; it must be drawn off at least three times a day until the condition can be permanently relieved by other remedies. Then other means: keep urine alkaline; use daily baths; flannel clothing; bowels regular. Try first tincture of iron in alternation with belladonna, cinchona, cinchonina; general tonics, with every means to improve general health.

Continenence in Ladies is frequently brought about by oversensitiveness or modesty, in the long retention of their urine. They, from the extreme width of their pelvis, are enabled to hold their urine longer than men, and by such long retention seriously injure the sphincter muscle by stretching.

In such cases, adopt the usual means; all failing, draw off by catheter, and then use infusion of uva ursi.

Occurring in or during pregnancy, no remedies to be used; patient to be solicited or encouraged to make water in recumbent posture, if failing to be drawn off by catheter.

Continenence in the Aged.—Old men are its victims, and especially those who have been what the world calls fast, having exhausted their physical and mental powers by alcoholic drinks and sexual excesses; men with diseased prostates, either degenerated or hypertrophied; men who are used up by excess and over-stimulation; cold, wet, exposure, excesses, horseback exercise. Acid urine, as in rheumatism and gout, may excite the suppression; but in ninety-nine cases out of one hundred a diseased prostate is at the bottom of the trouble.

In the treatment of continence, before drawing off by catheter,—the hot bath, hot hip-bath, hot poultices of lobelia and belladonna to pubes and perinæum; suppositories of belladonna; warm drinks of cream of tartar and nitrate of potass; tincture of green root gelsemium and belladonna internally; all failing, use catheter. Then use alteratives and tonics, but especially hydrangea or saxifragica in infusion.

Cinchona acts well in all its forms, as also iodide of potass. During the alterative and tonic course, suppositories of belladonna and iodide potass at bedtime.

Avoid horseback exercise, sexual congress, drinking, either spirits, malt liquors, or wines. With the disappearance of diseased prostate, both continence and lost virile power soon give way, and even an aged man may feel free from the incumbrance of such an affliction.

The anterior portion of neck of bladder being covered by branches of sympathetic nerve, explains why emotions, desires, affections, passions, have such an influence in causing incontinence and continence of urine, in all ages and in both sexes, especially the female.

IRRITABLE BLADDER.

Irritability of the bladder is said to exist when there is an unnaturally frequent desire to pass urine.

It may arise from organic disease of the spinal cord, kindeys, bladder, prostate gland, or urethra; vascular tumors in the female urethra; pressure of the gravid uterus; irritation of piles, or intestinal worms; presence of a tumor or stone in the bladder; catarrh and ulceration of bladder; acid urine, or functional derangement of the kidneys, bladder, stomach; and to shock to sympathetic nerve, and irritation of adjacent organs.

Symptoms.—The desire to micturate comes on suddenly, frequently, and irresistibly; urine may have to be passed every fifteen minutes—an inability to resist the desire; if attempted, great uneasiness or aching pain. The total amount of urine passed in the twenty-four hours very rarely increases in quantity; bladder diminishes in size; the general health begins to suffer.

Treatment.—If possible, remove the cause; and in order to do that the urine must be examined, to see if it is acid or alkaline; if loaded with urates, or phosphates, or oxalates; or if it contain albumen, or pus, or sugar, or any morbid material, and disease traced to its origin, which remove. Patient's bathing, diet, and drink, regulated to nature of malady at the base of difficulty. Alteratives and tonics, irrespective of cause, changed weekly, and persevered with; suppositories of belladonna and opium every night. Then try special drugs to act

upon bladder, as buchu, uva ursi, pareira brava, queen of the meadow, cleavers, couch grass, pipsissewa. Select one; infuse about one ounce to half a pint of clear infusion every night; let it stand on stove over-night to draw; to be used next day; the two that acts best to be selected for regular use. Try, also, the action of nitromuriatic acid; tincture of iron; tincture of benzone, cantharides.

If not of old standing, belladonna plaster to loins; avoid all stimulants, even tea and coffee—anything that aggravates the difficulty; no mental anxiety or other depressing influences.

SPASM OF THE BLADDER.

All muscular structures are liable to attacks of spasmodic action; the bladder having such a coat is frequently affected with spasm. Spasmodic attacks are accompanied with great pain, as well as contraction.

Causes.—The presence of a stone in the bladder; disease of the rectum or uterus; abscess of kidney; an inordinate amount of uric acid; ulceration of the walls of bladder; disease of prostate gland; excessive sexual congress; hysteria; the use of drastic diuretics or emenagogues, as oil of turpentine, juniper, cantharides, savin.

Symptoms.—Severe pain in the lower part of the abdomen, extending to urethra. There is either continence or incontinence, or dribbling of urine. The difficulty is not so great when the urine flows involuntary; when there is retention, with urgent desire to micturate, and tenesmus, with inability to do so, suffering is great. If allowed to continue, may terminate fatally.

Treatment.—If patient is seen during the attack, hot baths, enemata of warm water and lobelia; fomentations or poultices, with belladonna, linseed poultices, with lobelia and belladonna; suppositories of opium and belladonna.

Internally, mucilaginous drinks, with cream of tartar and nitrate of potass; either the compound of lobelia, valerian and capsicum, or else sumbul and tincture of green root gelsemium.

When attack is over, removal of cause, alteratives and tonics, iodide potass and sulphate of quinine.

Diet regulated, an avoidance of all stimulants; tea, coffee, warm clothing; forbid horseback exercise, or sexual intercourse, and appropriate remedies as to cause.

PARALYSIS OF THE BLADDER.

The muscular coat of the bladder may become paralyzed from diseases incidental to the bladder itself; from disease of the nervous system, especially the spinal centres, or from constitutional debility.

The paralysis may be due to over-distension of the bladder, an excessive stretching of the muscular coat, brought about by holding the urine too long; old age, with diseases incidental thereto; disease-germs and blood poisons, as gout, rheumatism, syphilitic and tubercular disease; enlargement of the prostate gland; pressure of the head of the child in labor, if long or tedious.

Symptoms.—When the bladder is paralyzed its contents are retained; but when the distension becomes very great the muscular fibres of the contracted sphincter are stretched apart, and the urine begins to dribble away by the urethra; hence the inexperienced are apt to be led astray, taking it for a case of incontinence. But if the hand be placed above the symphysis pubis the bladder can be felt, as an immense enlargement. Urine is highly ammoniacal, loaded with mucus, pus and phosphates. Pain at the neck of the bladder and glans penis is not to be depended on as a symptom, because the bladder loses its sensibility, and the desire to void urine is not experienced.

The constitutional disturbance is usually severe; the pulse becomes quick, wiry, feeble; the tongue coats; appetite fails; great restlessness and depression; vital power grows feeble, and the patient, if not relieved, sinks into a state of stupor, and dies of exhaustion.

Treatment.—Empty the bladder by the catheter; then wash it out with a tepid infusion of hydrastis and borax, or bayberry and iodide of potass.

Remove the cause, and then, after using the following remedies a few days, select the ones that afford most relief: tincture of nux, iron, calabar bean, gelsemium, erythroxylon coca.

Alteratives and tonics, not forgetting the astringent diuretics; cups, galvanic cautery, belladonna plaster to spine.

TUMORS IN THE BLADDER.

A large number of growths are developed from the walls of the bladder: warty, or polypoid fibrous bodies; villous, or vascular growths, and cancerous deposits.

Whatever the nature of the growths, they give rise to symptoms that resemble calculi—frequent micturition, a painful sense of inability to empty the bladder; urine may be bloody, or purulent, or ammoniacal, or loaded with mucus.

Cancerous deposits are the most numerous; medullary, epithelium, more common than scirrhous; suffering great; easily recognized by the pain anterior and posterior, the cachexia, and germs in urine.

Treatment.—*See Cancer.* If patient is seen early, the ozonized clay has a marked effect over the bladder, with ozonized remedies internally.

DISEASES OF THE MALE ORGANS OF GENERATION.

BALANITIS

Consists of an irritation, inflammation, with a shining, glistening redness, or excoriation of the covering of the glans penis and inner aspect of the prepuce. Some call it balanitis when the glans only are affected, and balanitis-posthitis when both glans and internal lining membrane of prepuce are involved. The distinction is unnecessary and altogether uncalled for, as the two conditions are essentially the same.

Causes.—Excessive sebaceous secretions around *corona glandis* often gives rise to it in boys and virtuous young men, and causes anxiety, which ignorant or knavish physicians will magnify into something venereal, so as to extort a fee. Rubbing of clothes, chafing in hot weather, masturbation, a natural rankness in some women, will cause it in highly-organized and susceptible men; catamenial discharge, and the venereal germs. From whatever cause it arises, it can be communicated to the opposite sex by contact; as the parts, whether dry or freely exuding muco-purulent matter, are freely covered or filled with bacteria. So, in dressing, the cleaning of vessels, destruction of dressing, and great cleanliness, especially about hands, lest any of the matter reaches the eye.

Symptoms.—Heat, redness, itching about the glans. In some cases it is of a smooth, shining redness; in others, a muco-purulent discharge. On uncovering the glans, by drawing back the prepuce or foreskin, patches of redness and excoriations are perceived, with flakes of curd-like matter. If there be swelling of the foreskin, or if its sphincter fibres are irritated, it may be contracted, so that it cannot be drawn back over the head of the penis, so that retraction is impossible, and then there is phimosis. There are many reasons why the foreskin should be drawn back in cases of this kind; there may be a perforating ulcer, a chancre, or an abscess, or mortification may be taking place; bubo from the irritation may take place; there may be a gonorrhœa, or an indurated or infecting chancre.

Vulvitis in women is an analogous affection.

Treatment.—Draw the foreskin gently back; make a wash

of permanganate of potass, ten grains to the pint of water, or a tablespoonful of borax to the pint; take a small sponge, saturate with the wash, and squeeze it so that it drops from a height of twelve inches on the affected part. Continue this douching till the pint is used; do it three times a day. After having performed this, press gently a fine piece of muslin, or silk, on the affected part, so as to dry it; then smear it over glans and prepuce with ozone ointment. When the foreskin can be drawn back, this plan will effect a cure in a few days. The ozone ointment could be spread on a thin layer of cotton-wool if desired. In cases where the foreskin cannot be drawn back, take a small gonorrhœal syringe, and inject round and round it with same wash. If an ulcer, or chancre, or gangrene is suspected, circumcision, slitting up of prepuce; or sometimes it can be relaxed with a warm poultice and belladonna. If there is danger of contraction, a little cotton-wool smeared with ointment should be kept applied.

Mothers should be instructed to draw back the foreskin in the daily ablutions of the child, and apply a little oil to unite with the sebaceous secretion, and then wash off. Young men should follow same practice every day. This would not only promote health, vigor, and growth of the penis, but would do much to prevent masturbation, nocturnal emissions.

It would have a salutary effect. The oil need not be used unless there is the white, cheesy secretion; it will suffice to drop cold water on its neck, with the foreskin retracted, or drawn back.

PHIMOSIS.

A preternatural contraction of the foreskin over the head of the penis, preventing its being drawn over the glans penis.

Causes.—It may be congenital, and give rise to obstructed micturition in the infant; or it may be acquired in after-life, by the irritation of the sebaceous secretion, by clothes, chafing, masturbation, gonorrhœa, or irritation; from discharges in the female.

Symptoms.—In children and adults, there is the long, contracted foreskin, which gives rise to obstruction in urinating, resembling stricture, or stone in the bladder. In some cases, an inability to urinate. In adults, the swelling, elongation, and contraction is generally due to masturbation, gonorrhœa, chancres, and often causes great swelling of the areolar tissue and balanitis.

Treatment.—Warm bathing, hot hip-bath, with tobacco and belladonna; the local application of lobelia and belladonna; injecting a hot infusion under foreskin. If once back, a thorough ablution with warm water and lobelia; cotton-wool, with

ozone ointment, around head and neck; and then pull foreskin over, and repeat three times a day, inculcating rest, and bowels freely opened with salines. Get rid of cause upon which it depends.

If all means fail, circumcision should be performed. This is performed in a variety of ways.

As introduced by that great pathologist, Moses, to prevent the dissemination of the venereal disease, it consisted in a simple slitting up of the entire length of the foreskin to the rim or neck on the upper or dorsal aspect, and excising a small piece like a V. This answers well enough in children or very young persons, because the two bags or ears that are left are easily and quickly absorbed. The better plan in adults, is an entire excision round, only not interfering with the frænum or bridle on the inferior aspect; first slitting it up, and then clipping it off neatly with the scissors; inserting eight or nine lead wire sutures; stitching the edges of the mucous membrane to the skin. Subsequently, dressing with some antiseptic lotion, as lime-water, tincture of iodine, borax, and glycerine; keeping all the time moist; changing and destroying dressing twice a day.

PARAPHIMOSIS.

This is a condition in which the nerves that supply the circular muscular fibres of the foreskin are irritated; there is a preternatural contraction, but the tight prepuce is behind the glans penis, that is, drawn back over it, whereby the head of the penis becomes constricted, swollen, and in some cases so engorged with blood that the prepuce cannot be replaced.

The causes are the same as phimosis.

Symptoms.—Great swelling before and behind the constriction at the neck. The mucous membrane forms a thick, brawny girdle, like a tightened rope. Great congestion of glans penis. Pain, inflammation, ulceration, gangrene of head, if neglected. Violent constitutional disturbance.

Treatment.—Hot bath; then warm hip-bath, with tobacco; enemata of lobelia; then sit patient down in a chair, the physician or operator sitting opposite with a yard of silk ribbon in his hands, the width of the glans penis. Place the centre of the ribbon on the dorsal or upper aspect of the glans penis, drawing each end downwards, forming a loop; then place one end of the ribbon round the second finger of right hand, to form a loop; the other on the same finger of the left. That will leave the index finger and thumb on each hand free for manipulation; then tighten, compress glands gently but firmly; keep compressing steadily, and soon as you perceive a decrease in size taking place, persevere still, and while thus compressing, catch the constricted prepuce with index finger

and thumb of each hand, still compressing; pull the prepuce over the glans penis. If you are unable to accomplish that, a notch, although we are partial to incision of the prepuce at several points, if only one, let it be a free one, at the tight, preputial collar.

If several incisions are made, say five or six, it is equal to circumcision, for in the process of healing, the foreskin entirely disappears.

Unless there is some legislative enactment made to prevent the spread of syphilitic disease, it would be well to reinstate one of the best and wisest methods of protection or prophylaxis, the Mosaic sacrament of Circumcision. There can be no doubt but that the circumcised are a highly-favored and chosen people, having a great immunity from this terrible disease-germ.

HERPES PREPUTIALIS.

A contagious affection of the prepuce, consisting of clusters of vesicles, usually upon a non-inflamed base, in size from the head of a pin to that of a small pea, sometimes isolated, in other cases, in patches. The contents of the vesicle are simply a mass of living diseased germs. Although readily communicable from one to another, or from the serum or germs running on the skin or mucous membrane, and being originally the result of a degradation of normal bioplasm, still it is doubtful if it can be regarded as a venereal affection.

Treatment.—As soon as a vesicle forms or fills, puncture it with a needle, and let its contents escape, and press a sponge saturated with lime-water and tincture of iodine lotion, or with a lotion of permanganate of potash; then dry by gentle pressure, and apply ozone ointment. There is no use in caustics, as the disease will reappear after their application. In all cases, alteratives and tonics for a few weeks. If a married man, same precautions as to wife, and abstinence from sexual congress till both are well.

INFLAMMATION OF THE URETHRA.

May exist in either an acute or chronic form, independent of the venereal poison, or so-called gonorrhœa.

Causes.—May be due to mechanical violence, passage of calculi, strains, blows, excessive sexual congress, the catamenia or rankness in some ladies, horse-back exercise.

Symptoms.—Pain, heat, redness, swelling; very great pain in micturition if urine is acid; muco purulent discharge; irritability of bladder; there may be chordee, a bent or crooked condition of penis during erection, from a lesion of its erectile fibres; if so, there may be blood; lips of urethra often much

swollen; often retention of urine, with fever and constitutional disturbance.

The discharge is contagious, because it is heavily loaded with bacteria, with a few amœba. If severe, liable to give rise to stricture and gleet, same as gonorrhœa.

Treatment.—Rest in bed; hot hip-baths; open bowels with salines; keep urine alkaline with nitrate of potassa and cream of tartar, drinks of linseed tea, tincture of green root of gelsemin in thirty-drop doses, every three hours; when inflammation has subsided, pulverized cubebæ and cream of tartar, or kava kava or golden tincture. Chronic form, use same remedies.

STRICTURE OF URETHRA.

In inflammation of the urethra, from the intense congestion of the capillaries of the mucous membrane of the urethra, the calibre of the urethra is often diminished in size, or otherwise altered, which causes the stream of urine to be as fine as a thread, or twisted, or forked, or scattering, or even suppressed; this, by some, is erroneously called *inflammatory stricture*, whereas it is the stage of inflammation called dry clap, or congestion.

In chronic inflammation of prostate, with hypertrophy of either of the lobes of the gland, the morbid condition imparts a hyperæmia to the urethral nerves, which is much influenced by nervous states, weather, cold, damp, etc., in which there may be retention, or if able to micturate, stream will be small, cork-screw shaped, split, forked, etc., which is most erroneously termed *nervous stricture*.

What we mean by a true organic stricture, is an effusion of lymph, and its organization into a band or bands, or an elongated infiltration, causing an impediment to the escape of the urine, or causing the stream to be small, twisted, split or forked, or like a cork-screw; and if a silver catheter, warmed and oiled, be introduced, it can be felt on the lower aspect of the urethra, where it forms an obstruction to the entrance of the instrument; and as it is permanent it can always be found in the same position. In all forms of inflammation of the urethra, the stress of irritation is on the lower surface; hence, strictures, chancres, breaks, are located in this position.

Treatment.—The object to have in view is the improvement of the general health and absorption of effused lymph. The remedial measures, therefore, must be good diet, tonics, and alteratives, as cinchona and mineral acids; iodide potass in some vegetable alterative. It is to be distinctly borne in mind that, although modern science and art have done much for the urethra, that what has been achieved possesses no practical

utility. There is neither good sense, nor judgment, nor reason, nor science, in forcibly tearing up a stricture within a poor fellow's urethra with Holt's dilator, when in six weeks it will have returned worse than before; neither is there utility nor common sense in slitting them up with the stilleto, or burning them out with the galvanic cautery, when in the short space of a few weeks they will be worse than before. The only true method is absorption, which should be carried out in the following manner: Patient carrying out alterative treatment internally; every second day a silver catheter, warmed and well smeared with vaseline ointment, in which iodide potass and belladonna are incorporated, should be introduced, pressing the point of the instrument, in passing over the stricture or strictures, well up against the upper aspect of the canal; carry the point up to the prostate. A catheter that will pass easily should be used, patient in recumbent posture, and it should remain half an hour. This is to be repeated every second day, gradually increasing the size of the instrument until a No. 12 passes easily, and even after that continue for four or six weeks longer. Never dilate, the presence of the metallic body, from time to time, causes a wasting of the lymph, and it gradually and forever melts away.

If time is an object, forcible dilatation is the next best method. This is best accomplished either by placing patient in hot bath, administering an enemata of lobelia, or by inhalation of a few drops of chloroform, and forcibly introducing a No. 12 catheter through or over the stricture, right into the bladder, tying it there, and retaining it in that position for a week or ten days, patient being kept in recumbent position in bed. During that time suppuration takes place along the entire canal; the effused lymph, or stricture, disappears. After the withdrawal of the catheter, for a few days it may be necessary to draw the water off until the patient regains control of the sphincter.

FISTULA IN URETHRA.

If a stricture is not absorbed, it will give rise to irritation of the urethra and gleet discharge. The obstruction rebounds upon the prostate, and causes chronic enlargement of that gland; besides, in bad cases, a drop of urine is liable to lodge behind the stricture, and excite irritation, inflammation, ulceration, and ultimately an opening or fistula, through which the urine flows or drops when the patient urinates.

The best method of treatment, patient under an anæsthetic, is to carefully dissect out the fistulous tract; then forcibly introduce through the stricture into the bladder a No. 12 silver catheter, and retain; stitch up the wound, and by the time it has healed—eight or nine days—stricture will have entirely suppu-

rated away, and an excellent cure of both fistula and stricture will be the result.

MALFORMATION OF URETHRA.

In children born from incompatible parents, or those related by consanguinity, there are two forms of malformation that result:

(1.) **Hypospadias.**—A congenital malformation; when complete, the urethra terminates, or opens, on the under surface of the urethra, some distance back, with no orifice at the extremity, or point. In some cases, there is a small thread-like opening, through which a few drops of urine may flow.

(2.) **Epispadias.**—Is the same condition, perfect or imperfect, but where the opening is on the dorsum or upper aspect of the penis.

Both conditions render the patient unable to impregnate.

Treatment.—Patient under anæsthetic, make an opening at the extremity, or point of the penis, where the urethra ought to be; bore through the tissue in a straight direction with a large trocar; when the urethra is tapped at the mal-formed opening, withdraw, and introduce a No. 12 silver catheter. When you are sure you are in the urethra, dissect out the abnormal tube, or opening, introduce catheter into bladder, and stitch up the old orifice. There must be the greatest certainty that the walls of the old mal-formed urethra are well removed; better a little more than too little. Tie catheter in bladder for two weeks; at the end of which time the patient will have a magnificent new urethra, perfectly formed, moulded on the catheter.

GLEET

Is the escape of a white, glarry mucus from the urethra, which may be due to, (1.) The presence of a stricture, or thickening by lymph. (2.) To an exudation from the prostate gland in catarrh and chronic prostatitis. This is the most common of all forms, as eighty per cent. of all American males, over thirty-five years of age, are afflicted with prostatic irritation. (3.) To a weakness or relaxation of the mucous membrane of the urethra, the result of inflammation. This latter is what is termed true gleet. The symptoms are those of debility.

Treatment.—Every means calculated to improve the general health; good food, daily bathing, especially the shower-bath; well-regulated bowels; tonics and alteratives, cinchona and mineral acids, glycerite of ozone, tincture of iron.

Inject urethra with infusion of golden seal, aromatic sulphuric acid and water, or some mild astringent.

HEMIPLEGIA OF PENIS.

Due either to congestion or anæmia in spinal cord, caused either by blows, falls, or excess.

General treatment as to cause.

PRIAPISM.

Constant and distressing erection of the penis.

Causes.—It may be due to some injury of the spinal cord, as fracture, concussion, occurring at the lower portion of the dorsal or upper lumbar vertebræ, or at the origin of the nerves in the brain; subacute inflammation of the corpus cavernosa, or effusion of lymph or blood into that structure. Both conditions may be caused by venereal excesses, or masturbation; that is, effusion may take place into the corpus cavernosa from the irritation of the hand, and the irritation is transmitted to the spinal cord and brain, the reflex centre.

Treatment.—If due to fracture of the spinal column at the point mentioned, or disease of the brain, all that can be done is to afford relief until the cause is removed, if it is possible; when due to masturbation, if the practice can be discontinued, a cure is usually effected. Our chief dependence is to be placed upon large doses of tincture of the green root of gelsemium, with bromide of potass. The dose here must be large and carefully regulated. The gelsemium, in doses of from thirty to sixty drops every three hours in divided doses, so as to watch it. The bromide, in from thirty to sixty grains during the same period, with a few grains of bicarbonate; it may be given at one dose. At the same time, suppositories of balladonna and camphor.

If due to effusion in the corpus cavernosa, arnica lotions and iodoform suppositories are of utility.

Diet regulated. Cold is sometimes of utility to penis, or ice to lumbar portion of spine. There is little good in camphor, cocoa, Indian hemp, lupulin, etc. A course of vegetable alteratives and tonics should always be resorted to.

BUBO

Is a term applied to irritation, inflammation of the lymphatics of the groin. It may consist either of a simple irritation, or may depend on absorption of venereal-germs into the lymph channels.

Causes.—It may be caused by a simple inflammation of urethra, by balanitis, by masturbation or sexual excesses, long walks, horseback exercise, in-growing toe-nail. It may be due to the presence of the venereal-germ, chancres, etc.

Symptoms.—The gland swells, becomes indurated and tender, fills up with lymph, and when the lymph breaks down, a

suppuration takes place; there are rigors and pain, burning, throbbing. In some cases, fever and great difficulty in walking.

Treatment.—In order to prevent the irritation of the lymphatics of the groin, all applications to any morbid condition of the genital organs should be of a soothing nature. No caustics or irritants should be used, or, if used, those should be selected that cause no pain; all applications to be of a soothing character.

There are various remedies and modes of management, if they once form, in order to prevent suppuration.

Gentle pressure, with plantain-leaves next the skin, or iodoform ointment, or phytolacca, or stramonium ointment, with iodide potass. The ozonized clay, without pressure, or hot poultices.

If it is soft in centre, if pain is throbbing, poultices; if desirous of hastening it forward slippery-elm poultices, hot, with a good quantity of bicarbonate of soda in them during day, and linseed poultices during night. It may open itself, or have to be opened. In either event, it must be borne in mind that it must heal from the bottom; that its internal lining membrane or sac must be destroyed, as it is a true secreting membrane; so, if opened by the knife, the incision should be made in four different directions, so as to destroy its sac and permit it to heal from the bottom. If it opens itself, then, after its contents have been thoroughly evacuated, inject the sac with tincture iodine and iodide of potass, so as to destroy the secreting faculty of the internal lining membrane of the sac.

ACUTE INFLAMMATION OF THE PROSTATE GLAND.

A partial death of this gland may be induced by violence, blows, kicks, falls; by gonorrhœal inflammation proceeding upwards; by the use of strong caustic injections into the urethra; excessive venery, masturbation, disease of rectum; a metastasis of the poisons of gout or rheumatism in that class of subjects exposed to cold or wet; to the action of such drugs as cantharides, turpentine, balsam copaiba, etc.

Symptoms.—Pain in the perinæum, very excruciating, with sense of heat; frequent painful micturition, often inability to urinate; great pain and distress in defecation; a feeling of weight and fullness about perinæum and rectum; suffering increases; rigors and a fever set in, and difficulty of micturition increases. The insertion of finger up the rectum gives great pain, but by it the gland can be felt, hot, extremely sensitive, and enlarged. The greatest kind of suffering is experienced if a catheter is introduced; aching in hips and thighs, with dragging in back. If case is not actively treated, often progresses on to abscess.

Treatment.—Hot hip-baths, followed with suppositories of belladonna and opium, or enemata of the same remedies. Then perfect rest in bed, with either hot poultices or fomentations of lobelia, keeping perineum smeared with belladonna.

Treat fever with aconite, and as large doses of green root tincture of gelsemin as can be borne, with bromide and bicarbonate of potassa, every three hours. If there is inability to urinate, draw off with catheter. As soon as fever abates, add iodide of potassa to the bromide and bicarbonate.

Infusion of one of the astringent diuretics as a drink, to which sweet spirits of nitre can be added to keep urine alkaline. Uva ursi or hydrangea is the best. As case progresses, alteratives and tonics, iodide of potassa to be the principal. If abscess form, incision over fluctuation, followed with poultices, nourishing food, tonics.

Forbid, during treatment, all stimulating articles of diet, feather beds, sexual intercourse, liquors, as priapism is often present. If there are elements of gout, colchicum and quinine.

CHRONIC INFLAMMATION OF THE PROSTATE GLAND.

Or, as some term it, chronic enlargement of the prostate, is very common; not as a result of the dignity of a hoary age, but rather of the defects and vices of modern civilization. The character of the gland is such that with a slight degree of irritation, its different lobes become rapidly filled up with lymph, and thus become greatly hypertrophied. The enlargement is due to effused lymph, the result of inflammation, which, in old age, undergoes calcareous degeneration. Of the male population of North America, it is estimated that eighty per cent. of all over thirty-five years of age suffer more or less from chronic prostatitis.

Causes.—It may be a sequel of an acute attack, or may come on from the same causes, such as mechanical violence, gonorrhœa, irritating injections, diseases of rectum; but by far the most common causes are sexual excesses; masturbation; imperfect copulation, in withdrawing the penis in the act of ejaculation, so as to prevent impregnation; in having sexual congress with women of large or dilated vaginas, or affected with leucorrhœa, in whom the contractility or grasping power of vaginal walls is impaired, and the tonic action of the sexual act on the male is destroyed; the wearing of condoms; the want of compatibility in the sexes. These, and similar conditions, prevent the secretion of the prostate, as well as the semen from the testis, from being thrown off; the result is, it remains in the ejaculatory ducts and excites inflammation; in other words, they are imperfectly emptied of their natural

secretion; sedentary habits; incessantly in the saddle, as in riding; strictures; the debasing or demoralizing effect of our modern sexually exciting literature; drugs that cause a determination of blood to those parts; over stimulation in eating and drinking.

Those are a few of the most common causes of devitalization of this gland, the cause of premature decay, loss of national vigor or manhood. Although we have stated the disease to be of such prevalency and early occurrence, it is usually at a later period of life that decided symptoms make their appearance, although the enlargement begins early. The increase in size is due to a true hypertrophy of the normal structure of the gland. This hypertrophy may affect the whole gland, or only a lobe, or the two lateral lobes alone, or the middle alone may be affected. Again, there may be a separate tumor of prostatic tissue embedded in the substance of the gland, or pedunculated growths may spring from the surface of the gland and project forward on the bladder or back to rectum, often mistaken by the ignorant for piles.

The effects of chronic prostatitis on the spinal cord are bad; on the brain even worse; and as a mechanical impediment to the bladder, of the gravest kind; alters the course of the urethra, lengthens its vesicle end, increases the curve, and diminishes the calibre of the canal; besides, the cavity of the bladder may be intruded on by the size of the gland; its muscular coat thickened by frequent straining to void water, and later on the ureters may, with the kidneys, become affected. Chronic inflammation of the bladder may take place, and its capacity be diminished, or it may become sacculated. Although we have stated thirty-five as the period in our country of its appearance, still, as the symptoms are obscure, patients may not seek relief for many years thereafter. It is a slow, insidious, but progressive disease. The production of prostatic inflammation must be regarded as the result of ignorance and wilful violation of natural laws, and not as the calamity of age.

Symptoms.—The symptoms of chronic inflammation of the prostate in the early stage, are not of a prominent kind; indeed, the gland may attain considerable size without giving rise to much trouble. But decided when there is weakness in erectile power, or seminal losses, or obstruction to urinating, or urine escaping with the stools, stream weak, more difficulty in turning it on or off, besides increased frequency in micturition, with more irritability of the gland; if unmarried, nocturnal emissions, one after the other, or a morbid desire for sexual intercourse; often a slight gleet discharge, which keeps the urethra red, tender, or sore. The enlargement causes a mechanical impediment to the function of the rectum, as well as the

bladder; stools are flattened like a ribbon; constipation; a feeling as if the bowels were not perfectly evacuated. The frequent calls to make water become a serious item, disturbs the patient at night, and interferes with his comfort during the day. Continence or incontinence is likely to take place; if the latter, the urine dribbles away. As the case progresses, there is more irritation of the bladder, urinary misery becomes greater, and fits of retention may take place from the slightest exposure to cold, or excess. The reflex symptoms are often distressing,—languor, lassitude, debility, nervous prostration, derangement of spinal cord, brain, stomach, liver, and especially in young patient, a morbid condition of the mind.

With all these and other symptoms, there should be an examination per rectum with the forefinger of right hand, and in all cases the gland can be felt, large, hot, tender. The examination should be made with patient on his back, finger-nail filled with soap, and the finger, well oiled, should be introduced very slowly and gently, so as not to excite spasm of the sphincter.

Treatment.—As soon as the disease is clearly made out, and the necessary arrangements made, begin with a general vegetable alterative and tonic course, as ozonized phytolacca and iodide potass, ozone-water, glycerite of ozone, gentian, columbo, or some other better tonic.

Instruct patient that cure is slow, but positive, unless very old. Inculcate good diet; attend to skin; daily bathing and flannel clothing; bowels to be opened daily; a cold water hip-bath, morning and night, for fifteen minutes each time; forbid tea, coffee, tobacco, and all kinds of alcoholic drinks; recommend exercise, an avoidance of unhealthy literature, and for a few months at least, a suspension of sexual congress. Patient should sleep on hair mattress, on his right side. While this treatment is being carried out, the special features of the case should be attended to.

To Arrest, Check, or Control the Morbid Sexual Desire, or Emissions.—Try first thirty drops of tincture of green root gelsemium at bedtime, and increase dose if necessary. Or tincture digitalis, drops eight. Or tincture belladonna, drops five; begin in afternoon, and give three doses before bedtime. Or tincture erythroxylon coca in sufficient doses. Or lupulin and lactucarium. Or, best of all, the spermatorrhœa pill. The salts of bromine are efficient, and, if used, let it be for a little while.

To Promote Absorption of Effused Lymph in Prostate.—The patient is on iodide potass in his alterative; so, to aid its action, try every night at bedtime a few grains of powdered mandrake, blue flag, and cream of tartar. Or infusion of hydrangea; or cleavers; or uva ursi. Or muriatic acid in five-drop doses, thrice

daily, in water; and, in addition to either, a suppository of belladonna and iodide of potassa.

To Overcome Inflammation of Prostatic Portion of Urethra.—The utility of the application of the solid sticks of nitrate of silver in paste caustic, every two or three weeks, cannot be controverted.

For Retention of Urine.—The ordinary means, warm hip-bath, belladonna suppositories, and gelsemium internally, failing, urine should be drawn off daily with a catheter. This is a good plan if there is the least inability to empty the bladder completely, as it is of primary importance that at least once in the twenty-four hours the bladder should be thoroughly emptied. If this is not attended to, it may bring about paralysis of the organ, with the loss of the power of voluntary micturition, and cystitis. For this purpose, a No. 12 silver catheter is better than a smaller instrument; it goes in easier, is less likely to do damage. Keep the point of the instrument on the upper wall of urethra, and, above all things, use no force. In a short time, even in old cases, the patient will be able to get along. An alterative and tonic course should be persevered in.

PROSTATORRHŒA.

This may be defined as an excessive secretion, of a clear, viscous, tenacious fluid, like the white of an egg, entirely destitute of spermatozoa.

The causes of this catarrhal condition of the prostate gland, are, masturbation, withdrawing the penis in the act of ejaculation, having congress with women affected with leucorrhœa, or with those whose vagina is large, relaxed, or lost its tonicity; or often a result of chronic inflammation, badly-treated gonorrhœa.

Symptoms.—These consist in the discharge of a few drops of a ropy, viscid mucus from the urethra after micturition and defecation. The escape causes great alarm, as the patient believes he is suffering from a loss of semen, whereas it contains no spermal elements. Still, the frequency and persistency of the moisture, the slimy urethral discharge at stool, exercises an irreparable bodily and mental injury to countless thousands. True, the involuntary emission of semen is often associated with it, but catarrh of the prostate often exists without there being a particle of semen in it. In catarrhal inflammation of the tubular glands of the prostate there may be some tenderness, frequent micturition, and loss of sexual power.

In making a correct diagnosis of this affection, we must bear in mind that the normal function of the prostate is to furnish an alkaline fluid in which the spermatozoa may float, and, like the sexual apparatus, is kept in a healthy condition by a normal

co-ordination of the nerve-centres. The proper secretion of all glands depend on a healthy nervous system. If the centre is perverted, the circulation of blood through the prostate is vitiated. The seat of sexual desire is in the base of the brain. The nerve-centre for the sexual organs is situated in the lumbar enlargement of the spinal cord. If those centres are entire, the sexual secretory function is perfect; but when sexual glands discharge their peculiar secretion into a common emunctory or outlet, it is difficult without microscopical aid to distinguish whether they are simple or compound.

In prostaticorrhœa there is no semen; no loss of that brain secretion, which is intrinsically the most valuable fluid in the body—life itself; one ounce of which is richer by far than forty ounces of arterial blood, the loss of which in chronic prostatitis and spermatorrhœa enervates, whittles down, produces premature decay, lost manhood, fills the lunatic asylums, gives rise to suicidal mania.

In the white, slimy, glairy, tenacious catarrhal discharge of the prostate there is no semen.

Treatment.—Same as for spermatorrhœa and chronic prostatitis.

In addition, a very free use of the fluid extract sumbul and erythroxylon coca, which exercises a most remarkable sedative influence over the motor, sexual, and urinary centre in the spinal cord.

CANCER OF THE PENIS.

Malignant disease of the male organ; may be met with in the epithelial, medullary, and scirrhous form. It is more frequently caused by contact with an affected female than otherwise. It may begin on prepuce or extremity of the penis. As the structure of the organ is of very high organization, destructive ulceration is rapid. Lymphatics on the dorsum of the penis and in the groin become early involved, and the cancerous-cachexia is thoroughly established.

The usual treatment for cancer must be carried out with persistency and activity.

INFLAMMATION OF THE TESTICLES, OR TESTITIS.

The testes are so called, from *testis*, a witness, a testimony of virility; a gland for secreting spermatozoa from the brain. They are liable to suffer a partial death from a variety of causes:

(1.) **Acute Testitis**, or *Orchitis*, or *Swelled Testicle*, may be caused by blows, kicks, falls, or violent exercise, or badly-fitting clothing; by a metastasis, or extension of gonorrhœal inflammation from the urethra; such inflammation having been shifted or moved by the use of such drugs as balsam copaiba, turpen-

tine, cubebs, kava kava, or aggravated by strong irritating injections, or alcohol, or venereal excesses. In some cases, only a portion of the testicle is affected, such as its body; or the epididymis and tunica vaginalis are attacked, or the entire gland suffers.

Symptoms.—Pain, and feeling of weight in cord and testicle; great uneasiness in the loin, groin, and upper part of thigh; frequent micturition; diminution or suppression of the urethral discharge; swelling of the epididymis, which embraces and hides the testicle; scrotum firm and tense; swelling of the cord; great tenderness; pressure aggravates the pain. There is pain in the head, back, calves of legs; rigors, and a fever; nausea, vomiting, constipation. The inflammation, if violent, powers of life feeble, or inefficiently managed or treated, may terminate in chronic inflammation, with effusion of lymph, induration and enlargement, or abscess; or, if vital force is greatly depressed, and system vitiated with mercury and syphilitic germs, gangrene.

Treatment.—As there is nausea and often vomiting, with a depraved condition of the alimentary canal, an emetic of lobelia, followed by warm or alcoholic vapor-bath; then open bowels freely with salines; administer aconite, veratrum and gelsemin, freely and frequently, till pulse reaches seventy, then in small doses at longer intervals; opium and Dovers powder, to relieve pain; apply, in the form of packs, several layers of cotton flannel, embracing the entire scrotum, saturated with the following: water, one quart; muriate of ammonia, half a pound; nitrate of potash, quarter of a pound; common salt, a handful; tincture of iodine, one ounce. Mix; cover with oiled silk, and moisten again and again. If skin of scrotum becomes tender or sore, or excoriated, keep it off a few hours, and apply cloths wet with hot water and opium. Bowels to be kept freely opened; patient must be confined to his bed; diet as for fever. Just as soon as the active stage is controlled, place patient upon iodide of potassa in a vegetable alterative, followed by tonics. If the inflammation of the testis be due to the sudden suppression of a gonorrhœal discharge, it is unquestionably a good plan to inject the urethra, once or twice, with a solution of the sesquicarbonate of potass, so as to cause the gonorrhœa to re-appear; it has the effect of removing the inflammation from the testis at once. In bad cases, powers of life low, and ignorance of medical attendant gross, where the inflammation has been maltreated, the testicle enormously swollen and very painful, it is found to be a good plan to puncture the body of the testis, so that by a division of the tunica albuginea, the pressure on lobules and convoluted tubes may be removed. The incision allows a quantity of serum, lymph, and blood to escape, and affords

instant relief in such cases. After such, some resort to compression with adhesive strips, but this is very painful, and the best plan is to apply the hot water and opium. After recovery, patient should wear a suspensory bandage for a few months.

(2.) **Chronic Testitis.**—In this we have a low grade of irritation, with a large quantity of lymph effused, which gives rise to very great enlargement and induration, the testis becoming, in some cases, enormously increased in size.

Causes.—It may be a sequel of an acute attack when badly managed, but more generally it is due to a low grade of irritation, as horseback exercise, imperfect coition, strains, condoms, stricture, gleet, or the presence of the syphilitic germ in testis.

Symptoms.—Testicle hard and swollen; slightly painful to pressure, but very weighty; the irritation and effusion of lymph usually begins in the epididymis, and extends to the body of the testicle; sometimes effusion of serum takes place into the tunica vaginalis. The syphilitic form is usually accompanied with indications of the presence of that germ elsewhere, as on the tongue, throat, skin, bones or iritis.

Treatment.—Pretty nearly the same as for the acute; bowels open; use of same lotion; iodide of potass internally. Here, if the cause can be ascertained, remove it. It is well to look for stricture, or masturbation, or impediment to sexual congress.

If case does not yield, try ozonized clay, at night, around entire scrotum, or several times a week; during the day, apply belladonna ointment and iodide of potass, or ointment of iodide of cadmium, or iodoform ointment; wear suspensory regular; and internally, ozonized phytolacca, ozonized glycerine, and iodide and bromide of potass. In cases of great enlargement, with induration like a stone, it will yield to the above if persevered with.

(3.) **Abscess and Fungus of Testicle.**—This may follow acute or chronic inflammation, if effusion of lymph has taken place in any quantity. The appearance of rigors; the pain changing to a throbbing pain; a sense or feeling of fluctuation; when those symptoms are detected, the tissue becomes adherent, and nature makes an effort to evacuate the pus through an opening made by the inflammatory action. When the skin and other integuments give way in this manner, there is no need of any surgical proceeding. If nature is slow or tardy, then she must be aided by hot poultices and a puncture. Pressure being applied after the pus has been evacuated. Either after spontaneous opening or otherwise, a protrusion of fibroplastic matter with some of the tubular structure of the testicle is liable to take place. If not watched, kept in its place and strapped, this tubular protrusion or fungus slowly increases, so that it must be returned and kept in its place. If the pro-

truded part has become disorganized, it must, however, be sliced off, a proceeding equivalent to partial castration. After all the lymph has been evacuated and healed up, there may exist an adhesion between the covering of testicle and the internal lining membrane of the scrotum; if so, if detected early, it can be pulled asunder by grasping the testicle firmly, and pulling the scrotum apart from it. If it does not yield easily, divide by incision.

In all cases, patient should be kept on alteratives and tonics, and wear a suspensory bandage for some months.

(4.) Tubercular Testes.—A weakened condition of the testicles from any cause serious enough to relax and permit of effusion of the tubercular germ into the tubuli seminiferi, or into the epididymis, may give rise to an immense growth of these germs in this structure. Indeed, the testes are to be regarded as a favored pasture field for all diseased germs in the blood.

Symptoms.—There are few of the indications of inflammation; no pain or tenderness, but testicle becomes nodular, and does not increase much in size; still, without apparent irritation, the tubercle grows; undergoes its various forms of death, milky, cheesy, calcareous; softening and suppuration take place; the swelling bursts; pus and tubercular matter comes away; sinuses form, and other infiltrations may break down. The sores may heal, or there may be a protrusion of tubular structure—the fungus of the testicle. The tubercular diathesis is usually well marked.

Treatment.—The same constitutional treatment as laid down under tuberculosis, administering ozonized glycerine and water steadily. The application of the ozonized clay, every night, over the entire scrotum, if skin does not become too tender, soon destroys the germ; and during the day, ozone ointment or lime-water and tincture of iodine could be kept applied, with suspensory.

(5.)—Other germs irritating testicles, as the germs of syphilis, mumps, scarlatina, etc., the treatment to be carried out on general principles.

NEURALGIA OF THE TESTIS.

The nerves of the testicle are often exhausted by venereal excesses; suffer anæmia or starvation; often poisoned by impure blood, as in syphilis, gout, rheumatism, etc.; or the ejaculatory ducts become clogged or stopped up, giving no outlet for the secreted semen; the testes suffer; their covering or tunic is stretched, and they are compressed; and we have their nerves crying for richer and purer blood, and freedom from compression.

Neuralgia.—This condition of nerve-starvation or nerve-

poisoning, in its ulterior results, leads to atrophy of the testicle.

Our best remedies are rest; a most generous nerve-manufacturing diet, as animal food, white-fish boiled, oatmeal mush, corn bread; external warmth to scrotum; relieve pain by opium and belladonna suppositories, hyosciamus and opium; administer internally quinine, cinchona and mineral acids, ozone water, glycerite of ozone. If there is a syphilitic taint, or rheumatic or gouty diathesis, special remedies to meet such. General tonics and alteratives if cause is obscure.

ATROPHY AND HYPERTROPHY OF TESTICLE.

Wasting of the testicle is due to excessive venery, masturbation, germs of syphilis, neuralgia, varicocele and circocoele, tight capsular coverings, irritation, hæmatocele.

Blows, shocks on back of head or spine, as well as excessive grief, sorrow or suffering, may produce wasting of the testis.

It should be treated with alteratives and tonics; removal of cause, and local stimulants and brain food.

Enlargement without effusion of lymph is rare; still it may take place from excess, masturbation, having congress with women with very roomy or dilatable vaginas, and other forms of irritation. Increase in size is often due to obstruction of the seminal or ejaculatory ducts.

VARICOCELE.

A varicose condition of the veins of the spermatic cord.

Causes.—The predisposing cause is one of essential debility, and may arise from any cause which retards the upward flow of blood, as sexual excesses, masturbation, straining, standing, tumors, hernia, trusses, obesity. As the left side is weakest, the veins on that side the longest, they afford a better chance for obstruction, and are those specially affected.

Symptoms.—A pyriform swelling, with base on testis, which diminishes or disappears when patient lies down; has a slight impulse on coughing, but always feels like a bag of worms; besides, there is weight; aching about groin and loin; a good deal of uneasiness or pain about scrotum; neuralgia of testicle; and, if not cured, leads to entire wasting of that important gland. Mental depression is a prominent feature in the case.

Treatment.—The removal of cause or causes; a regular action of bowels to be insured by proper diet. Every possible means taken to improve general health, with nourishing food, baths, and proper clothing. A cold water hip-bath morning and night; a suspensory bandage to be worn, one that will give proper support. The internal remedies should consist chiefly of tonics, such as cinchona compound and mineral acids; a pill of quinine, hydrastin, iron and nux; gentian and

nux vomica, and extract of hamamelis or hazeline. This latter remedy in lotion is our best local application. Rigid perseverance will effect a cure.

The obliteration of veins by silver or iron-wire ligatures, or hair-lip pins, or dividing veins in any way, is never free from danger.

Circocoele.—A varicose condition of the veins of the testicle. Common cause, masturbation and syphilitic disease. Should be treated same as varicocele, and an alterative and tonic course pursued for some months.

SCROTAL EFFUSIONS.

The various diseases of the testes are liable to give rise to effusion of serum from the tunica vaginalis, and thus give rise to an accumulation of water in the scrotum, called *hydrocele*; whereas injuries, as falls, kicks, give rise to extravasation of blood, or *hæmatocele*.

(1.) **Hydrocele of Tunica Vaginalis.**—Dropsy of the scrotum may be a result of inflammation, or disease, as enlargement of testis injuries, or dependent on general dropsy.

Symptoms.—The scrotum becomes gradually distended with serum, which forms a smooth, pear-shaped, elastic, and translucent swelling. The spermatic cord can usually be detected free at its neck, and the testicles can be detected lower down. There is no impulse on coughing. To take patient into a dark room, and hold the scrotum between you and a lighted candle, is an absurd proceeding; for the serum in the scrotum is often grumous, turbid, and it may not be transparent, although in a good number of cases it is of a pale straw-color. In quantity, it averages about twelve ounces, less or more. If it is allowed to become chronic, it may lose its pear shape, become thick, and almost invariably opaque. In some cases, instead of the water being in one mass or volume in the scrotum, it is found in cysts, resembling a honeycomb; it is then called *encysted*. Little boys may be born with this accumulation, and the communication between the peritoneal cavity and scrotum may not have been obliterated; it is called *congenital*.

Treatment.—In the early stages or in acute form, such as in scarlet fever or from testitis, try treatment for dropsy—diaphoretics, diuretics, hydragogue cathartics, preceded with digitalis, then iodide potass, and back on those remedies (*see Dropsy*), using the lotion of muriate of ammonia over scrotum. If medicinal means fail, then tap the scrotum about three-fourths of an inch from the median line at the base, boring gently in with trocar and canula until the serum appears between the fingers; then withdraw the trocar, leaving the canula in, through which the fluid oozes out. After it has been entirely

drained away, insert the trocar again, and push it through the walls of the scrotum high up. After perforating, withdraw the trocar, and insert up through the canula a strand of seven threads of saddler's silk, and holding the upper end, withdraw the canula, and then tie the ends of the strand together; undo this knot every morning, and remove one thread every successive day till they are all withdrawn. By this method the secreting faculty of tunica vaginalis will be destroyed, and a perfect cure is the result. There is no deceiving the patient with this manner of dealing with the case, as the result is always most satisfactory. Some tap without using the seton; others tap, withdraw the fluid, and inject tincture of iodine; while another class aspirate; all such measures are uncertain and inappropriate.

In the encysted form each sack must be punctured, one by one, and their contents drained off, and then the seton. In the congenital form a truss must be worn, so as to irritate a little, and thus close up the vaginal process. Usually the muriate of ammonia lotion to scrotum is sufficient.

(2.) **Hydrocele of Cord.**—It is rare to find serum accumulating in the areolar tissue of the cord; if it does occur it is apt to be in distinct cyst. If medical treatment is necessary, our best remedies are alteratives and muriate of ammonia lotion.

(3.) **Hæmatocele.**—Is usually the result of injury or violent inflammation. The hæmorrhage or effusion of blood fills up the tunica vaginalis in some cases so as to cause compression of the testicle, and thus produce atrophy. Rest, use of absorbents, as iodide potass, with the use of muriate of ammonia and tincture iodine lotions, will often effect absorption. If it does not, the scrotum should be opened at its most depending part, and the coagulated blood permitted to escape.

(4.) **Scrotal Œdema.**—Is very apt to be present in anasarca of scarlet fever, or Bright's disease; in measles, erysipelas, variola; the areolar tissue becomes infiltrated, sometimes in itself produces violent constitutional disturbance, and gives rise to sloughing or phagedæna. Muriate of ammonia lotion, attention to skin, kidneys, bowels, and, if sloughing threatens, local and internal antiseptics, tonics, best of nourishment.

(5.) **Phagedæna of Scrotum.**—In highly tubercular subjects, subjected to some depressing influences or irritation, phagedæna, or gangrene, will suddenly set in, without any prior inflammation, or hæmatocele, or venereal disease, and in spite of best local and internal antiseptics, destroy the scrotum clear to the pubes.

Most nourishing support, local and internal antiseptics to destroy the germ *oidium albicans*.

(6). **Scrotal Elephantiasis.**—Enormous hypertrophy of the scrotum, so great that it often reaches between the knees.

The sebaceous glands, from a few up to a great number, often become filled up with cheesy or sebaceous matter. If ozonized clay does not act as a solvent, they have to be opened one by one, and contents and cyst removed. Mucous tubercles are common on scrotum in syphilitic contamination. Sprinkling with calomel is the best remedy.

SPERMATORRHEA.

A deranged state of bodily and mental health, due to the flowing or oozing away of semen. The causes are numerous, but masturbation, or Onanism, is the most common cause.

Masturbation, or Self-abuse, is a name applied to a pernicious and destructive habit—the stimulating of the penis with the hand, in order to excite a discharge of semen; an *act* revolting to humanity, and destructive to a vigorous manhood; an *act* that depreciates the vital stamina, dwarfs and whittles down manhood, entails degeneration, disease, insanity, and death on the individual.

The more marked effects of masturbation are its irritating effects upon the prostate gland, causing inflammation by the act, and retention of semen in the ejaculatory ducts; the veins of the cord and testicle also suffer, become weak, and varicose; atrophy, or wasting of testicle, likely to take place; and if the practice has been commenced in early life, they do not attain their full size, lose their power of secreting semen; and associated with these conditions, the entire body is dwarfed and robbed of its vital elements—life itself.

True, the generative organs suffer most. The penis and testicles resemble those of a boy, take on interstitial absorption, lose their elasticity and firmness, become almost bloodless, the spermatic cord atrophies, the nerves degenerate, and the cremaster muscle disappears. The thin, watery semen that is formed under such a state is entirely destitute of spermatic granules and spermatozoa; its fertilizing power is lost, and impotency supervenes.

When the testicles waste away, as the result of masturbation, the wasting is equal, degenerating to nothing; whereas in atrophy, the result of systemic syphilis, they alter in shape, become uneven or irregular, or elongated as well as small.

Instead of that diminution in size, the testicles may enlarge, puff up, insidiously increase in bulk, but diminish in firmness, consistency, and elasticity; in other words, they become spongy. Whether it be enlargement or atrophy, it is always to be regarded as the precursor of decay.

The intimate relationship of the brain and spinal cord, the

nervo-vital fluid, and the secretion of the semen or spermatozoa from that, intrinsically the most valuable tissue in the body, render a perfect harmony and adaptability between the organs and brain indispensable.

It is the delicate and impressible nervous system of the young of both sexes that experience the depressing effects, the fearful ravages of self-abuse the most. It strikes at the root of society, the origin of our species, dwarfing its very form and features; stunting growth, and creating tubercular and innumerable diseases; enervating and debilitating every tissue. The tendency of the present age in developing the nervous system of our people at the expense of the physical, the moral tone of society blunted, the character of a large amount of literature, and the lowering tendency of modern amusements, and other conditions, have their effect in creating this abnormal desire. Fathers and mothers must not shut their eyes to the fact, that children at a very early age often resort to tickling the generative organs. It too frequently happens just at a time when all the energies of nature are needed for development. The most critical period of life is about and after puberty. The change that takes place, the rapid growth of the organs, the increased power and frequency of erection, the development of a new life, and other states, imperatively demand that the young man should be surrounded with pure, moral atmosphere; should on no account suffer from isolation or monotony—two of the worst elements in its production.

The time at which young persons become addicted to this habit is one of the most critical periods of life—usually about puberty. The generative propensity, called forth prematurely and viciously gratified, steps in amidst the natural efforts of growth, with its unnatural train of nervous shocks and physical pollutions, causing our boys and girls to have the appearance of old age, being feeble, pale, imbecile, effeminate; having a distaste for everything, incapacitated for enjoyments, mere wrecks of humanity, being victims of chorea, epilepsy, paralysis; in other words, they are committing a lingering moral and physical suicide.

Change, diversity of scene, an avoidance of monotony or sameness, no isolation of sexes, never solitary or alone, are essential to high health and longevity. Isolation, or monotony, wipes out the convolutions of the human brain, renders its victim an irresponsible being, but in nearly every instance a masturbator. If you desire evidence, take the inmates of our prisons, refuges, asylums, homes, boarding-schools. Isolation of the sexes has a highly detrimental effect in producing the typical brain convolutions of the Onanist.

Man is the abject slave of habit, hence the difficulty of aban-

doning the habit of masturbation when once indulged in. Often the patient is unconscious for years of any change, and no part of the body feels weaker than another; but *surely*, though it may be *slowly* and insidiously, a creeping languor, lassitude, and debility comes on; a want of energy, a depression of spirits, a disinclination to society; these feelings gradually increase until they attract the attention of the victim. His face becomes pallid; his back and knees weak; he sees specks or spots before his eyes; his hands and feet are cold and clammy; the circles around his eyes are depressed and darkened; he becomes emaciated; he cannot bear the cold as formerly; his old pursuits and amusements have no attraction, nor new ones a charm for him; his memory becomes imperfect; his eyes become weakened; morbid sensations annoy him; the freshness and plumpness of complexion disappear; a leanness or wasting of tissues succeeds; the skin becomes rough, often of a leaden hue; the eyes lose their brilliancy, and by languor express that of the whole frame; the lips lose their vermilion tint; the teeth their whiteness; the hair becomes dry and falls out, and sometimes even the whole body is bent and distorted; his face is shrunk, haggard, pale, unmeaning, and unexpressive; his eyes dull, and lacklustre.

The evils of this practice are not alone confined to the male sex, but are equally common among young women, especially those of a religious turn of mind in the higher circles of society. Young and apparently modest ladies are dying by thousands from consumption, female complaints, spinal and nervous irritation, general debility, and other obscure diseases, caused by masturbation. The effect on the female is similar to that in the male. The practice causes a glairy discharge, very weakening, also leucorrhœa, and ovarian irritation, mental aberration, suppression of the menses, and general disorganization of the economy.

Hence the stimulus arising from distension of these vesicles becomes a pleasurable impulse to the necessary multiplication of the species; and if sexual desire were susceptible of gratification only as the result of instinct, if depraved man, instead of exhausting his generative organs by reading trashy novels or impure literature, filthy conversation, lewd and lascivious imaginings, and such like, which are entirely absent in the lower animals; if, like them, he were content to follow the dictates of his unerring organization, diseases arising from excess would be unknown, equally among us as with them, and the integrity of the human stock be improved beyond even the most vivid imagination. As the seminal vesicles will not allow of extraordinary distension, the thinner portion of the semen becomes absorbed, and thereby the bulk of the secretion is diminished; yet the residue becomes more acrid and stimulating, the impulse

to excretion is almost rendered unconquerable, and so nature occasionally relieves herself of the superabundant secretion. Of this act, men are mostly unconscious; if, however, it arrests attention, its frequency and its consequences are the circumstances that arouse the proper and natural fears of the sufferer.

The effects of masturbation are not confined or limited to the sexual organs, to wasting or atrophy of spermatic cord, testicles, and spinal cord, but reacts chiefly upon the brain, in creating the most inveterate form of tuberculosis; a diathesis which in itself intensifies sexual desire, added to which our literature of the baser sort is pre-eminently demoralizing, the moral atmosphere is tainted.

The constant drain and irritation impoverishes the spinal cord and brain, and tells upon the whole body; the semen of a person so affected becomes thin, watery, of a sickly odor, no spermatozoa in it, consequently not fertilizing; and even if slightly so, the offspring would not be likely to survive.

The effects produced by masturbation may be embraced under three heads:

- (1.) A simple condition of relaxation or debility, in which the seminal ducts will not retain the semen, or else a condition of chronic prostatitis, with emissions often and persistent.

- (2.) Chronic inflammation of the lower portion of spinal cord.

- (3.) Exhaustion and irritation of the brain.

The leading or characteristic symptoms of those three stages are as follows: A general feeling of languor, lassitude, debility; there is vertigo or swimming in the head; specks or spots before the eyes; noises in the ears; skin becomes white; pupils are dilated; breath fetid; digestion is feeble; bowels constipated; the fæces harden in the rectum, and produce irritation of the seminal ducts in their vicinity; the circulation is languid; the extremities cold and clammy; the muscles soft and flabby; by-and-by, the forehead may be dotted over with pimples; the corners of the mouth are lengthened; the nose and features become sharp; eyes sunken and deprived of their brilliancy; there are bluish circles around them; no look of gaiety or animation; he cannot look you in the face; becomes morbidly sensitive; loses all his vivacity or grit.

The case progresses onwards; there is weakness about loins and knees; a crackling in the joints; memory fails; perceptions become dim; desires blunted; distraction or absence of mind, which renders him unfit for business; imagination gives birth to the wildest fancies and most groundless fears; an allusion to the habit, in his presence, causing a twitching, a flush of shame, or even despair. The affected one shuns the face of man, and dreads the observation of women; then, after a while,

there are fainting fits, wandering pains, chorea or convulsions, tremblings, epilepsy, and partial paralysis.

The debility of spermatorrhœa is both local and general, never partial. Persons so affected, in attempting sexual intercourse, may be unable to get an erection; or, if the act is accomplished, an emission takes place too quickly, and is followed by exhaustion; besides, there are daily as well as nocturnal losses; the semen regurgitates, and finds its way into the bladder, and is passed in the urine; or it may be passed during an evacuation of the bowels; the patient becomes keenly alive to his weakness; is timid, fearful, careless of everything; his mind becomes absorbed in the consideration of his malady, until the presence, recurrence and persistence of the same train of thought, with the ever-leaking seminal ducts, creates a monomania or premature old age. There is not a gland or function nor movement of the body natural, nor a faculty or organ, nor sense or perception of the brain clear or healthy; all is out of gear; nothing but disintegration and disease; with all, through by all night and day, the seminal fluid or brain juice oozing, dribbling away without sensation, erections, or any show of natural ejaculation. This persistent drain of the most vital fluid in the body varies in quantity, according to the state of weakness.

Although the brain and cord exhibit great damage, and even molecular death, still, there is not an organ in the entire body that is not seriously affected. We hear it in his squeaky voice; in the palpitation of the heart; in his difficult, often suffocated, breathing; besides, his or her stomach is deranged; appetite craves strange articles; there is indigestion; prostration of nervous system by day; unrefreshing sleep at night. The emissions on some have a fearful, prostrating effect, those by night being exhausting, and those by day, at stool or in urine, or in a continual oozing and dampness, even still more enervating.

Then, briefly to recapitulate:

Spermatorrhœa is a draining or oozing away of the vital fluid, a loss of an essential principle of life; or, in other words, a state of nervous exhaustion, brought about by masturbation, which is an irritant to the sexual apparatus, which irritation, as well as drain, implicates both cord and brain, often giving rise to organic lesions; with loss of memory; impairment of senses; loss of continuity of thought, with extreme debility; the eye loses its lustre; the aspect becomes cadaverous; an inability to look a person in the eye; a distaste for society; a fear to meet women; a love of solitude; an atonic condition of the genital organs, followed by disorders of the kidneys, bladder, liver; a depraved stomach; weakened bowels; disturbance of the heart; laryngeal and bronchial trouble; in short, the whole

body is injured by the indulgence in this solitary vice. An offensive odor is emitted from the person, resembling the smell of the ailantus blossom in a decayed state, or a dog-kennel. Its effects are many, causing obscure nervous disease, epilepsy, nervous exhaustion, impotence, sterility, softening, prostatitis, leucorrhœa, chorea, menstrual irregularities, imbecility, paralysis, consumption, and death.

From the above remarks it will be seen that spermatorrhœa, with its numerous complications of diseases, may be embraced under three distinct heads:

(1.) The weakened or relaxed conditions of the organs of generation; with prostatic disease; atrophy or hypertrophy of testicle; varicocele; circocoele; oozing of semen, either by urine, stool, leakage, emissions or otherwise.

(2.) Chronic inflammation or exhaustion of spinal cord. Its reflex nature causes it to be implicated early.

(3.) Co-existent with the earliest dawn of loss of semen, the brain becomes devitalized, and remains persistently through the case, and needs recuperation or repair.

Treatment.—In managing a case of spermatorrhœa, those three conditions should be borne in mind, and the treatment carried out accordingly. The patient must have the utmost faith in his medical adviser, that he has the abilities and remedies for a cure; the patient must understand the deleterious influence of immoral or obscene literature, variety theatres, and other vices of depraved civilization, and shun them like a virulent poison. He must be careful of books or pamphlets of nefarious medical pretenders; of bad company; and he must be instructed as to the utility of religion and goodness on his moral nature and sexual vitality.

The patient must have some bodily and mental work, and cheerful society. He should not sleep over seven hours, on a mattress, with light covering; he must sleep on right side, never on back. He should eat nutritious food that is easily digested; avoid all alcoholic or malt liquors; use no tobacco, tea or coffee; he should, if possible, use a cold water hip-bath three times a day, carefully washing the glans penis, so as to remove all sebaceous substances, and dry off gently; and if the testicles are drooping, wear a suspensory during the day. If there are any hardened fæces or seat worms, use cold water injections into rectum morning and night.

In addition to the above, daily bathing of the entire body, flannel clothing, with exercise in open air.

Place patient at once on a general course of vegetable alteratives and tonics; the alteratives two hours after meals, and the tonics before meals, changing them weekly. Then at the

same time, special remedies to check emissions, relieve the irritation of cord, and reconstruct the brain.

For Arresting the Emissions.—Use first the spermatorrhœa pill, which is a most efficacious remedy. As patient becomes habituated to their use, place him for a few days on tincture of green root gelsemium, in from twenty to thirty-drop doses, beginning at eight o'clock, P. M., with first dose and another at bedtime. It has a most excellent effect in checking nocturnal and daily losses. Or erythroxyton coca can be used in same manner and dose as gelsemium. In some cases, tincture of digitalis in eight-drop doses operates well. Camphor, conium, and belladonna, lupulin and lactucarium, are also invaluable in some cases, in pretty large doses.

As a rule, never give bromide of potass and ammonium; they may arrest the emissions, but invariably, if long continued, hasten or increase the atrophy of the testes, besides being irritating to the mucous membrane of the stomach. With some of the above, the leakages will undoubtedly be arrested, even in the most desperate cases, for the spermatorrhœa pills are almost infallible. Nocturnal losses in married men, where sexual congress is permitted once a week, dependent on debility, the general management of the case is the same, as regards baths, and injecting rectum with cold water, but a somewhat different line of conduct in checking the losses. Then compound tincture of damiana, or tincture of nux vomica, cantharides, and erythroxyton coca, or tincture iron, with sulphate of alumina. If there is any failure, then have him sleep alone, and put him on the regular treatment, as above laid down.

As soon as the emissions are positively arrested, and not before, the patient should be placed upon the glycerite of ozone, or ozone-water. Those are now our best drugs; they vitalize the shattered brain, restore the lost memory, overcome debility; they give tone and energy to the loose, flabby genital organs, steadying the action of the irritable heart, give expansion to the lungs, and remove that faltering, squeaky voice. Under their use the youth that has been prematurely old, becomes young, decrepitude disappears, the brain recovers its tone and vigor, the eye its lustre, the cheek its redness, the very joints are now lubricated, and the entire train of symptoms disappear.

All through this patient has been upon alteratives and tonics.

Those remedies are still to be administered; but the tonics now will embrace cinchona and mineral acids, sulphate of quinine and aromatic sulphuric acid.

The use of the glycerite of ozone entirely supersedes the compound hypophosphites of lime, soda, and iron; it acts more promptly, the case recovering with more rapidity and permanency.

As the cure progresses, give glycerite of kepheline ozonized, that brain and nerve food which nourishes the brain and nerves, by supplying the elements that have been lost by the emissions. In this way it restores the elements that have been drained away, which cause exhaustion, nervousness, loss of memory, paralysis, and other conditions of impaired vitality, besides the remedy is exhilarating nourishing, vitalizing.

IMPOTENCE AND STERILITY.

Impotence is a morbid condition in either sex, that prevents the spermatozoa of the male from coming in contact with the female ovule; in other words, it is an inability to consummate the sexual act. Sterility is a condition in which neither spermatozoa nor ovules are secreted, or elaborated; or, if evolved, their vitality is immediately destroyed, or possess no fertilizing power whatever,—a perfect want of power to fecundate.

(1.) Impotence in Man.—The act of copulation may be rendered inoperative by a variety of causes; such as by an absence of the penis; or a want of growth, or development, or malformation, or mutilation of the organ. The dorsal, or upper aspect of the penis is covered with branches of sympathetic nerve, and its erectile power may be influenced by moral influences, as emotions, desires, affections, passions; these may be simply over-excited, or violent, or dormant; the man may have lost his confidence, through fear, or modesty, or anxiety or great love, or even disgust, and find it impossible to get an erection, the organ remaining flabby, like an old rag. It is to be naturally expected that disease, as in fevers, blood diseases, and general debility from any cause, would render the sexual organs feeble for some time. Injuries about the back of the head, blows, falls, and jars of childhood, as well as the concussions, shocks, of more mature life, as railroad accidents,—which are a great factor in its production; heat of sun on back of head; those are the most stubborn, as sexual desire is located and semen secreted in the brain. Again, injuries and disease of the spinal cord will abrogate the power to copulate, though the desire remains and semen may be secreted. Abuse of the sexual organs by masturbation, and by what is vulgarly known as tasting, destroys every vestige of erectile power. If persisted in, the function of erection may be forever lost. Congress with loose, lax, very large women, or those affected with leucorrhœa, or excessive sexual intercourse, will in time impair and remove the power of erection. Excessive obesity, large scrotal hernia, hydrocele, locomotor ataxia, and other diseases, will also prevent coition. Drugs, and the reckless abuse of some remedies, have a most deleterious effect on the sexual function. The excessive use of tobacco, which impairs digestion, weakens the nervous system,

relaxes and whittles down the muscular tissue, renders a man feeble in procreative power, and ultimately saps his very vitals. Opium eating, or smoking, or morphine and chloral using, dries up the very springs of life, prevents the elaboration of semen in the brain, and paralyzes the nerves that supply the erectile fibres. The long-continued use of digitalis in cardiac affections, tells most disastrously on the penis, in causing impotency, as well as sterility. The long use of bromide of potass, on brain, spinal, and testicle, is equal to castration; indeed, all acro-narcotics, as belladonna, conium, hyosciamus, veratrum, etc., are all detrimental to the vigor and good health of the sexual organs; whisky is also highly deleterious.

Treatment.—The most hopeless cases are those in which the brain and cord have suffered, as in injuries, thickening, locomotor ataxia, and the like; or in some malformation, or mutilation, that cannot be rectified.

As a general rule, remove all causes, as far as can be ascertained. Many very grave cases of deformity can be overcome, even the growth of the organ promoted, by electricity, and causing a vacuum around the organ daily, with a glass bell and air-pump, and other local stimulants. If it is due to a weakness of the sympathetic system, and fear of inability, let him stiffen up the action of his heart with digitalis, turn his back to his companion, and wait, go to sleep, when probably early in the morning the difficulty will be overcome, and confidence restored. Disgust, or perfect incompatibility, often requires great tact and skill, but with good judgment and care he can be tided into the old rut, and all go well. If not, he must be placed upon the general treatment, which must embrace, daily bathing, with use of shower bath; hip-bath; cold water twice or three times a day; bowels to be kept regular, and sleep on right side; the duration of sleep extended to eight or nine hours; moderate exercise; no mental work; no care, or anxiety, or study, or worry; avoid intense solar rays; positively forbid the use of tobacco, tea, coffee, whisky; all acro-narcotics.

Strongly recommend brain food, as oatmeal mush, boiled white-fish, corn bread, eggs, oysters, beef, mutton, poultry, game, milk, cream.

See that digestion is perfect; if not, add pepsin.

An alterative and tonic course of remedies may always be prescribed with advantage, as having a tendency to improve the general health. Stimulating applications are often of utility to spine, in the form of plasters, friction, shampooing, electricity.

As to special remedies, phosphorus will naturally attract attention. It is not a good remedy as a medicine, as in every tobacco user it tends to create fatty degeneration; crowd it in

the form of phosphatic food, boiled fresh mackerel, and oat-meal, but spare it as a drug. If used, administer it in the form of water of the sticks, or infusion by boiling the sticks, or in tincture, or in the form of salts of hypophosphites of lime, soda, iron, in juice of meat. If tried, give invariably with a full meal, or after eating.

The glycerite of kephaline ozonized, being the natural phosphate from the ox brain, barley, oats, wheat, is a true nervo-vital essence, and can be administered with the best success.

Our next best remedy is the compound tincture of damiana, the true tincture of damiana, with the other ingredients.

Then *nux vomica*, *cantharides*, *erythroxylon coca*, and *sumbul*, should have a trial.

Cinchona and mineral acids, quinine and aromatic sulphuric acid, quinine, iron, and *hydrastin*, are our best tonics.

(2.) Impotence in Woman.—May be due to want of development in uterus; or malformation, as in vaginal occlusion, with an excessively-developed and ligamentous hymen; obliteration of the vagina, a double vagina, or a regular vagina without a uterus, or, if the latter exists, it is so small that it is of no practical utility; *vaginismus*, a super-sensitiveness of the surrounding tissues of the vagina, involving its sphincter muscle so as to form a complete barrier to coition; tumors of vagina, uterus, ovaries, which mechanically prevent copulation. Uterine cancer does not in all cases cause impotency. The same causes that exist in men,—disease of brain, spine, blood, and the use of snuff, or tobacco, opium, chloral, *belladonna*, *conium*, and whisky,—render some women callous, and often impotent. The want of ardency, or callousness, or the icicle coldness of some women, is not always to be attributed to impotency, but rather to incompatibility.

Treatment of impotency in women is to be carried out by a removal of cause, or causes, if practicable; many malformations can be rectified, as occlusion, tumors, and super-sensitiveness.

Then enforce pretty nearly the same course of bathing, diet, and remedies, as in males.

(3.) Sterility in Man.—An inability to procreate, or produce offspring. The power of procreation may be lost by disease of the brain or spinal cord, by tuberculosis, diabetes, albuminuria, some defect in the co-ordinating chemical faculty, owing to which the functions of the testicles have not been called into play. Locomotor ataxia, diseases of testicles, inflammation, induration, abscess, atrophy and hypertrophy, tumors, syphilitic sarcocele, cancer, varicocele, and circocele; obstruction of the excretory duct of testicle, such as temporary or permanent obstruction after epididymitis, power of copulating being good, but the ejaculated fluid being destitute of spermatozoa; oblit-

eration of ejaculatory canals from inflammation, hypertrophy, calcareous degeneration of prostate, or from lithotomy; impediments to the escape of semen, as stricture of the urethra, where ejaculated spermatozoa regurgitate into the bladder; abnormal openings in urethra, or urinary fistula, so that semen fails to be thrown up into the vagina; undescended testicles, that is, those organs being retained in abdominal cavity; copulation being feasible, but the semen, as a rule, is destitute of spermatozoa. Abuse of tobacco, alcohol, opium, chloral, belladonna, has a tendency to either destroy or dwarf the spermatozoa, so that they are incapable of fertilizing the ovum of the female; whereas some disease-germs, as syphilis, destroy the vitality of spermatozoa completely. In prostatitis and spermatorrhœa the acid, or acid secretion from that gland invariably destroys the sperm-cell.

(4.) Sterility in Women.—May arise from mal-position of uterus, simple displacement, or anti or retroflexion. All inflammatory states, with thickening and ulceration; intra-uterine catarrh, or congestion of mucous coat, such as we have in membranous dismenorrhœa; elongation of the neck of the uterus, or engorgement, or induration, or cartilaginous degeneration of neck, such as we have in mechanical dysmenorrhœa; obliteration, obstruction, or great narrowing of the mouth of the uterus or cervical canal; closure of the uterine cavity by a tumor or cancer; atrophy of the uterus; occlusion of Fallopian tubes; partial or complete rupture of perinaeum; recto-vaginal or vesico-vaginal fistula; suppression of menses from fright, or any cause; general weakness, debility, self-abuse with finger, towel, or rubber apparatus; too frequent, promiscuous, or imperfect sexual excitement. There may be an absence of uterus, ovaries, or simply an arrest of development. Leucorrhœa, as a rule, whether an abundant or acrid one, is almost sure to destroy the spermatozoa before they reach the ovule. Disease-germs, in blood, tubercle, syphilis, as well as those drugs already enumerated—opium, alcohol, chloral, bromide of potass, belladonna, digitalis—destroy the fecundating faculty of the ovarian bed, and the vitality of ovules, if any are secreted.

Besides those causes of sterility, there is a very prolific one in incompatibility of temperament, or related by blood ties; in antagonistic and opposite races. Where the temperaments of father and mother in the Caucasian are perfectly identical there is no fertilization of the ovum, even if both ovules and spermatozoa are healthy and abundant. The same result of non-procreation takes place where both parties are tubercular or syphilitic. A Cretinian never beget a Cretinian, nor an Albino an Albino. These latter are, however, to be explained on the principle that there is no establishing a morbid race.

DISEASES OF THE FEMALE ORGANS OF GENERATION.

PRURITUS OF THE VULVA.

Irritation of the vulva may be simply a local affection, or depend upon acrid discharges from above. Whichever of the two conditions exists, it causes a degradation of the bioplasm concerned in nutrition of the vulva, giving rise to a disease-germ, or fungus, and thus rendering pruritus of the vulva both contagious and infectious.

The same condition often takes place at the anus, giving rise to anal pruritus, pruritus pudendi. It is most common in advanced life; in some ladies very troublesome during pregnancy. Mal-nutrition, in some cases, can be traced to the root of the difficulty; the urine, in melituria, is a common cause.

Symptoms.—Itching, tingling, formication, or smarting, which becomes intolerable when patient becomes heated, or if stimulants and warmth are applied. The rubbing or scratching causes excoriations and scabs about vaginal labia, perinæum and mons veneris. The constant annoyance of this at night, gives rise to restlessness, loss of sleep, want of appetite, and constitutional disturbance.

Care must be observed to distinguish this from crabs, or prurigo of the skin.

Treatment.—Bathing the parts with tepid water and castile soap, morning and night, drying well and then rubbing in with ozone ointment is usually sufficient for a cure, unless it depends upon dyspepsia, or melituria, or some uterine difficulty, as chronic inflammation of the uterus, or excoriation of uterine labia. When it occurs in the later months of pregnancy nothing can be done but palliate the condition. If there is indigestion, tonics and antiseptics internally, as cinchona and nux, or mineral acids, ozonized glycerine. Any uterine trouble aside from pregnancy must be removed, and antiseptic vaginal injections used three times daily, as lotions of permanganate of potassa, borax, or zinc. If the ozone ointment is in any way unpleasant, then a lotion of borax, morphia and glycerine

could be used and kept in place by a T bandage; or lime-water and tincture of iodine; an infusion of lobelia with borax; tincture of iodine in elder flower water.

INFLAMMATION OF VULVA.

Several forms of inflammation may attack the vulva.

(1.) **Simple Vulvitis.**—This is not very common, but may take place from want of cleanliness; violence, as in forcible sexual intercourse, or where this act is excessive; the irritating discharge of a gonorrhœa; or from irritation from adjacent structures, as rectum, uterus.

Symptoms.—Usually sufficient constitutional disturbance to give rise to fever; the vulva becomes painful, swollen, and very tender. Mucous discharge, with heat or scalding during micturition; considerable aching in back, loins, and thighs.

Treatment.—For fever, aconite and sweet spirits of nitre. Open bowels with salines or compound liquorice powder. During the day, hot fomentation of borax and chamomile flowers; during night, linseed or slippery-elm poultices. Lastly, lotions of glycerine, borax and morphia.

(2.) **Gangrenous Vulvitis.**—In cases where prostitution is loose and varied, where vital force is greatly shattered, where the mercurial or syphilitic cachexia is sapping the springs of life, and in still more rare cases, after delivery, there is often inflammation of the vulva, and with it the *oidium albicans* of diphtheria appears on the parts. The mycelia find this a most congenial location, for with most extraordinary rapidity an ulcerative process sets in and destroys the labia.

Symptoms.—Nausea vomiting, prostration, fever, anxiety, vulva swells, becomes red, then livid and gangrenous. Disease progresses, large diphtheric patches form and are exfoliated or slough off, leaving rough, uneven, ragged edges; eats rapidly to pubes or uterus. A true sloughing phagedæna. It is highly contagious and infectious.

Treatment.—Control fever with aconite, *veratrum viride*, etc. Administer internally either carbolic acid and tincture of iodine every hour; or brewer's yeast, or ozone-water thrice daily. Quinine and aromatic sulphuric acid, or compound tincture cinchona and mineral acids internally. A perfect alleviation of pain with morphia. Locally, select either a lotion of permanganate, or borax, or morphia and glycerine, and alternate with yeast and charcoal poultices.

As the cause of this difficulty, or rot, is worn-out vital force, *construction* is the rule; so essence of beef, milk, cream, raw eggs; everything to make good, pure blood. After the case is beginning to do well, push ozonized glycerine.

(3.) **Follicular Inflammation of the Vulva.**—An irritation,

inflammation of the sebaceous follicles, scattered over the mucous membrane of the vulvo-vaginal entrance, around the nymphæ, and at base of clitoris.

The cause or source of irritation is often obscure. Most common during pregnancy or change of life; usually intractable.

Symptoms.—Always disturbance of the general health; lassitude, debility, liver torpid; bowels constipated; skin dry and harsh; pains in back and thighs; always more or less leucorrhœa, with irritation, soreness, smarting; sexual intercourse very painful. On an examination of the parts, they are usually found to be more or less inflamed; studded with numerous raised vascular joints, filled with sebaceous matter, with specks of ulceration on their summits. These points are so numerous that they coalesce, forming a strip of highly injected mucous membrane. This vascularity or redness soon disappears, and leaves the tissues covered with sebaceous secretion, looking as if covered with white paint. The leucorrhœa becomes acrid, and there is constriction of the sphincter muscle of the vagina.

Treatment.—The case should be treated with general bathing, gentle exercise; stimulating liver with salines, or cascara sagrada; diet should be plain, unstimulating, but nutritious. If there is no pregnancy the menstrual flow should be stimulated with compound betin pill; then a course of general vegetable alteratives and tonics should be inculcated and adhered to; locally, the vagina should be thoroughly injected thrice daily with copious injections, ranging from a pint to a quart, of washes of tepid water and permanganate, or borax, or lime-water and glycerine; the external parts smeared over with ozone ointment. Usually the case recovers rapidly with the above. If stubborn, after the evening vaginal injection, hip-bath, and introduce into vagina pastile of belladonna and iodide of lead. As far as possible, let all local remedies be alkaline antiseptics.

(4.) Pudendal Erythema.—Women, as well as men, especially if of a corpulent habit, are liable to chafe or become excoriated about the labia, inside of the thighs, perinæum and adjacent parts. It may come on from want of cleanliness, or excessive exhalation of moisture with some sebaceous secretion. The parts take on a true erythema, with bacteria. There is redness, burning heat, tingling and great discomfort. Bathing parts morning and night, and drying by pressure, anointing with oil, or sprinkling with any antiseptic powder, as powdered white oxide of zinc or spermaceti, or borax, either one is sufficient to establish a cure.

Infantile Leucorrhœa.—Consists generally in an irritation,

inflammation of the mucous glands of the vulva, causing a profuse muco-purulent discharge.

Causes.—Common causes, teething, worms, mal-nutrition, bad, or insufficient food.

Symptoms.—Tubercular children, suffering from very slight derangement of the health, or bad feeding, and undergoing the ordeal of difficult dentition, or having ascarides, are the victims of leucorrhœa. It may be only a moisture, or slight mucous discharge, with irritation of the surrounding parts; but if, as is generally the case, the irritation extends up the vagina, the discharge is usually profuse, muco-purulent and loaded with bacteria, which renders it contagious and infectious. Besides, there is usually pain during micturition, heat, scalding and excoriation, and if not attended to, ulceration. Great caution, if mother is ignorant, in not attributing it to gonorrhœa or attempted rape.

Treatment.—Place little patient upon the very best of diet, the most nourishing its circumstance and age will warrant. Inculcate bathing morning and night. Keep part clean with antiseptic lotions, borax and glycerine, or chlorate of potass. Look carefully for seat worms, and use daily injections into the bowels of some bitter infusion, and administer tonics and alteratives.

During the progress of the eruptive fevers, or diphtheria, there is often difficulty about the vulva, scarlatinal vaginitis, or exfoliation of diphtheric patches—best attended to with antiseptic fomentations and general treatment.

TUMORS OF THE VULVA.

Besides being subject to different forms of irritation and inflammation, the folding doors of the vaginal entrance are liable to several forms of growths, tumors, infiltrations, abscess, etc.

(1.) **Encysted Tumors.**—A firm, elastic tumor, varying in size from a pea to a walnut, having its origin either in connective tissue of vaginal labia, or in one of the lobules of the vulvo-vaginal gland, or in entire gland.

Symptoms.—When small it does not give rise to much trouble, but when larger it creates discomfort in walking, or in moving legs; pain after intercourse; irritability of the bladder; disturbance of catamenial periods. If irritation of walking is kept up, inflammation of the cyst may take place, followed by suppuration and abscess.

Treatment.—The best method of treatment is to freeze the part over the cyst pretty well, and make incision over it and turn the cyst out with handle of scalpel; if a simple incision is made into the cyst and its contents evacuated, it is necessary to touch the internal lining membrane of sac with tincture of

iodine so as to destroy its secreting faculty. A seton answers well without incision, but somewhat painful.

(2.) **Fibrous Tumors.**—Fibroid and fatty tumors are occasionally developed in the labia majora, and perinæum; they are met with variable in size from a small nut to an orange.

Treatment.—Apply ether spray to deaden sensibility and remove by simple incision. They can be absorbed by ozonized clay, but it is here difficult of application.

(3.) **Warty Growths.**—They are met with scattered round the labia, nymphæ, vestibule, perinæum and around anus. Sometimes they are covered with a cuticle; in other cases they look like strawberry excrescences and appear in clusters. They give rise to irritation and offensive secretion, which affects other parts. They are very troublesome, if urine is acid, on or near the orifice of the urethra. Removed by chromic acid, if parts permit of its application; if they do not, the super-sulphate of zinc.

(4.) **Abscesss of Labia.**—May occur from violence, blows; kicks, forcible sexual intercourse, irritation of gonorrhœal matter, or acrid leucorrhœal discharges, pressure of head in labor.

There is always constitutional disturbance, rigors, fever, pain, heat, swelling, throbbing. After using hot linseed poultices, a free incision. Tonics and good diet.

(5.) **Hypertrophy of Labia.**—This, to a limited extent, is common. Most inconvenient. The enlargement may exist in an unusual thickness of skin, in deposit of fat in cellular tissue, or general increase in size. In some cases, when the increase in bulk is due to elephantiasis, it attains an enormous size.

Treatment.—Alteratives are about the only remedies of utility.

(6.) **Pudendal Hæmatocele.**—Extravasation of blood into the areolar tissue of the vulva, or labia, takes place as the result of violence or labor, and usually consists of a sanguineous tumor, or large clot, from the rupture of some vessel.

Symptoms.—Considerable swelling, following some injury, forming at first an elastic swelling. In women of very fine structure, it may burst; more frequently it coagulates and is absorbed.

Shave parts, and apply a lotion of muriate of ammonia, and tincture of iodine; alteratives and iodide of potass internally. These remedies failing, after a fair trial, rub gently over the part an ointment of iodide of cadmium.

An absence of hair on mons veneris, and other parts, is met with, but due to syphilis, or tinea, where the parts are smooth; in other cases, there is a remarkable redundancy, in quantity as well as length.

CORRODING ULCER OF THE VULVA.

Rodent, or corroding, or eating ulcer of the external genitals, is only to be met with where the vital forces are very much shattered, or where great depravity, over-crowding, or filth exists.

Symptoms.—It usually exhibits itself in the form of an intractable ulceration of the labia, and extends over vulva and vagina; surrounding structure usually becoming indurated. As ulcer heals in one direction, it extends to another; process of repair accompanied by the formation of a firm, horn-like cicatrix, which has a tendency to cause a puckering, or contraction of the vaginal walls, or anal orifice. As a rule, patient does not experience much inconvenience from it for a long time; not until the vaginal orifice, or neck of the bladder, becomes fissured by it; then the patient experiences great pain after micturition. For a long time it seems not to interfere much with sexual congress, or menstruation. By-and-by general health becomes greatly impaired, appetite fails, the body wastes, there is diarrhœa, night-sweats, a profuse discharge from the parts, very offensive, and a general breaking-down of the health.

Treatment.—Rest must be enjoined, the secretions regulated, the function of skin stimulated with baths; appetite promoted with tonics, and the very best of nourishing food given; every means possible taken to build up general health. An alterative and tonic course of treatment persevered with for some months. Locally, no caustics. The vagina should be thoroughly washed out twice or thrice daily, by injecting at least a quart of tepid water, medicated with borax, permanganate of potass, or some antiseptic. Over affected part a good, thick coat of ozone ointment, three times a day, or vaseline and quinine.

In some cases, lotions of antiseptics; if used, they must be kept moist. They should be of a softening, emollient kind, as glycerine, borax, and morphia, or infusions of wild indigo and chlorate of potassa; lime-water, and tincture of iodine; whichever is used should be re applied fresh at intervals of three times a day.

CANCER OF THE VULVA.

The cancer-germ may be deposited on the labia, or vaginal walls; it may be found in acute (medullary), scirrhous (chronic), or epithelial form. When confined to the external labia, the disease is easily got rid of by the treatment laid down under that of *Cancer*.

VASCULAR TUMORS AT ORIFICE OF URETHRA.

In the female, aside from warts, there is often met with vascular tumors at or near the orifice of the urethra.

These excrescences vary in size from a pea to a walnut. Usually they are highly sensitive, exquisitely painful, giving rise to most excruciating pain and irritability in making water, which continues for some time. They also give rise to irritable bladder, pain in back, and considerable constitutional disturbance. The only treatment is either excision, or ligation, or destruction with caustics, as chromic acid, supersulphate of zinc, salicylate.

Keep urine alkaline during the process of healing, and inculcate a general tonic and alterative course of remedies.

DISEASES OF THE CLITORIS.

In ballet, or dancing-girls, the clitoris is often attacked with inflammation, effusion of lymph, and enlargement. In some cases, the hypertrophy is great, and terminates in abscess; in other cases, in cystic degeneration. The excessive development is in some cases congenital, being so large that some are in doubt but that they may be males. The clitoris is sometimes the seat of cancerous deposit. The entire organ may be diseased, or its prepuce.

Induration or enlargement may be due to self-abuse.

The treatment of inflammation, and its results, must be upon general principles, with alteratives and tonics.

Nymphomania.—Constant and distressing desire for sexual intercourse, with an erectile condition of the clitoris; may arise from disease of the brain, spinal cord, inflammation of clitoris, from masturbation, or excessive venery, sedentary habits or occupations, and, above all, by the vascular excitement that is produced by our abominable, sensually exciting literature.

Treatment.—Removal of cause, plenty of exercise, or hard work; daily shower bath, well-regulated bowels, sleep on straw or hair mattress, light covering; cold water hip-baths, and vaginal injections of cold water, except during menstruation; large doses of green root tincture of gelsemium and bromide of potass at bedtime, or comphor, belladonna, and conium, to cut off sexual desire; alteratives and tonics administered persistently; a strict avoidance of all light literature; a pure, moral atmosphere; same treatment as for masturbation in male. The amputation, or partial destruction of the organ with caustic potassa, is of doubtful benefit.

In cases of inflammation, rest, open bowels freely, hot poultices, and general treatment for fever.

DISEASES OF THE VAGINA.

The vagina, or sheath, or scabbard, or canal leading to the uterus, is subject to a variety of morbid conditions:

(1.) **Occlusion.**—There may be a tough or hypertrophied hymen, either partially or completely closing the vaginal canal, through which, if partial, menstrual discharge may escape; but which, if complete, it prevents its exit entirely. If it cannot be ruptured by the finger, either a longitudinal or crucial incision should be made through the obstructing membrane, and reunion, if unmarried, prevented by inserting oiled lint in the cut part; if married, sexual congress is to be permitted, which will keep the parts all right. If the band, or hymen, closes the canal completely, so that no sexual congress can be permitted, nor menstrual discharge escape, just satisfy yourself that there is a canal and a uterus, and, if so, an incision must be carefully made into it. In some cases of imperforate vagina, the congenital malformation is so complete that the vagina may be either adherent or altogether absent, or a stricture may intervene. In all cases the greatest care and caution are necessary in any surgical proceeding. If vagina is entirely absent, little can be done.

(2.) **Vaginismus**, or *Painful, or Difficult Sexual Connection.*—An irritable, spasmodic condition of the sphincter muscle of the vagina, with such excessive sensitiveness of the parts and of the surrounding tissues as to form a complete barrier to coition.

It may exist in various forms or degrees. In some cases, it is a mere tenderness, or increased sensibility; in other cases, the sensitiveness is great, amounting to a distress or severe agony, the slightest touch giving intense pain. This super-sensitiveness is due to a pure neurosis from altered nutrition, and we can find nothing tangible to account for it; or the cause may be clear, as some irritation, which causes inflammation of the mucous follicles above the vulva, and spasm of the muscular fibres; a true closure, or tonic spasm of an involuntary muscle. What the irritation may be that gives rise to this is somewhat varied. There are various examples of spasm, or contraction, to be found in the uterine appendages; for example, irritation of the clitoris causes contraction of the uterine horns; irritation of the urethral orifice causes contraction of the fundus of the bladder. In the largest number of cases of painful or difficult connection, the trouble is not discovered until sexual intercourse is attempted, and then the mere touching of the parts throws the woman into a paroxysm of intense agony.

In the more simple forms, nothing can be detected in the lady to lead us to suspect its existence. It may even come and

go, and its coming and going has nothing whatever to do with the sexual appetite, because it is not necessary for conception that a woman should have sexual desire. Women affected with painful connection may conceive and have a child, and the birth of the infant may not cure the disease; but it generally happens that the great distension and laceration of the vagina causes it to become less.

In a large proportion of cases the true condition is found, in newly married women, in a redness, or fissure, at the anterior margin of the perinæum, or in the fossa navicularis around the hymen. In some cases a true ulcer or an imperfectly ruptured hymen with ulcer which may heal and break out again and again and form little hypertrophies at seat of hymen, which are intensely tender and irritable. These ulcers are of a lupoid or eczematous character generally. It is only when pain and sensitiveness exists, and are extreme without textural difference that the condition may be said to exist.

The treatment consists in the removal of cause, the use of alterative injections, belladonna, and lobelia pastiles, with alteratives and tonics.

Few cases resist a persistent course of alteratives and tonics, with good diet. The best pessaries to introduce at bed-time are belladonna and opium, borax and camphor.

(3.) Acute Inflammation of Vagina.—May be due to the venereal poison, or may arise from violence, as the pressure of a foetal head in tedious or lingering labor; from the use of whalebone, knitting-needles, etc., with which some ladies make ineffectual efforts to commit abortion, and often irritate and perforate the vaginal walls; it may also be due to a want of cleanliness, especially if powers of life are feeble, or system vitiated.

Symptoms.—As the condition of partial death is seldom limited to the mucous coat, the symptoms are often severe constitutional disturbance, rigors, and a fever. In the vagina the soreness, rawness, and heat is intense; itching about the vulva, irritability of the bladder and rectum. At first the mucous membrane is dry and swollen, the secretion of mucus checked; then a watery effusion, and, by-and-by, a thick, creamy mucus or heavy muco-purulent matter, or pure pus, is poured out; then pain, soreness, and rawness are relieved. There is pain in the back, hips, and upper part of the thighs; a sense of weight and bearing-down, with considerable smarting and soreness. Inflammation runs its course in a week or ten days, and may terminate in recovery or in a chronic form. If the deeper seated parts of the vaginal walls, as the sub-mucous and muscular coats, are involved, the above symptoms may be more violent, the fever greater, pulse wiry, rigors often, and pain in vaginal walls throbbing; abscess may form and grave changes take place.

Treatment.—Patient must be confined to bed, and the general treatment for fever resorted to—aconite, veratrum, and sweet spirits of nitre; body sponged thrice daily, and bowels opened with cascara sagrada; injections of warm sweet milk and water, or linseed tea, or slippery-elm-water every three hours. To either of these injections opium to be added; suppositories of belladonna and opium. As soon as fever abates, and local symptoms become easier, change injections to tepid water and borax, or permanganate potass, and internally, give iodide of potass in some vegetable alterative, in alternation with tonics as compound cinchona and mineral acids, quinine and aromatic sulphuric acid, with very nutritious diet of fish, eggs, milk, ripe fruit, and drinks of infusion of marshmallow or linseed; fomentations of chamomile flowers, or linseed poultices to vulva. If abscess appears, open early.

(4.) **Chronic Inflammation of the Vagina.**—Leucorrhœa, or the whites, one of the most common diseases to which women are liable, consists in a low grade of irritation of the vaginal walls, and a muco or muco-purulent discharge.

Causes.—Are numerous and varied; greatly predisposed to by self-abuse, married life, tropical climate, by emmenagogue drugs, sedentary habits, trashy literature, and certain occupations requiring the continued movement of limbs—the more active exciting causes being frequent coition, many abortions or pregnancies, want of cleanliness, debility, etc. Indeed, anything that tends to weaken or impair the vitality of the vaginal coverings, the droppings or exudations in all morbid conditions of the uterus invariably irritates vagina and gives rise to leucorrhœa.

Symptoms.—The constant or frequent leucorrhœal discharge, “the whites,” is to be regarded as the essential symptom. This discharge may be mucus, or muco-purulent matter, or pus, or an exfoliation of the epithelial covering of the mucous membrane. There is general debility, languor, lassitude, probably headache, with backache more or less severe, and an indescribable weariness on the slightest exertion; loss of appetite, indigestion, flatulence, and constipation; tongue coats, breath fetid, and usually some mental depression.

Treatment.—The cause or causes must be removed, and then there is little difficulty in aiding nature to a cure. If there is any uterine trouble it must be got rid of before we can expect a permanent result. The local treatment, in all cases, to be discontinued during catamenial period. Cold water hip-baths, morning and night; vaginal injections three times a day, if possible; if not convenient, twice a day. Those vaginal ablutions should be very thorough, patient should sit down on a chamber, with a vessel containing a quart, at least, of the

injection, before her; the tube of syringe, well oiled, should be inserted up vagina until it feels unpleasant; the other end of the syringe in the medicated fluid, the bulb in her hand, which she is to compress and relax until the entire quantity is thrown up. As the injected fluid thus thrown up, is spread in innumerable directions, if done with some force, it runs round neck of uterus, cul-de-sac, and flows down vagina into the chamber. If the cost of the injection is great, then a quart of water thoroughly impregnated with Castile soap should first be thrown up, then a half or an entire teacupful of the medicated fluid. But cheap washes of real intrinsic value should be selected, as borax, permanganate of potassa, lime-water, and tincture of iodine, or infusions of golden seal, gold thread, bayberry, oak bark.

Alum, iron, zinc, tannic acid, are not to be recommended, as they possess no real merit; they may astringe, but cannot cure. The constitutional treatment is of the greatest importance: daily bathing; bowels opened with the most gentle remedies, as cascara, and the patient placed upon alteratives and tonics. Of the former, ozonized phytolacca compound, stillingia and iodide of potass two hours after meals; of the latter Port wine and Peruvian bark, compound tincture cinchona and mineral acids, or sulphate of quinine, and aromatic sulphuric acid, half an hour before meals. Diet to be generous and nutritious.

In this simple manner the most aggravated cases of leucorrhœa may be cured, and well cured—the tonicity of the vagina restored, and the patient made to feel that life is a comfort. All the symptoms quickly disappear, and she regains her usual vivacity and vigor.

There are cases, in which the symptoms are more aggravated than the above—cases in which there is redness and great muco-purulent discharges; or others in which the mucous membrane is of a doughy hue, with mental depression and a thick ropy flow; whereas in prostitutes, or where excessive coition is the cause, the color of the mucous membrane is purple or livid, and shrunken, with copious oozing. In all such, and even in some mild cases, the discharge is pretty well loaded with bacteria, amoeba, and other disease-germs, and is somewhat contagious.

In those cases, in order to make short work with diseased action, wash out vagina thoroughly, and then use the following: Take of the ozone et chlorine fluid, three ounces, and add it to one pint of tepid water, and inject slowly. This creates a perfect revolution in the tissues, substituting healthy action for the diseased. After a few days rest the milder injections of infusion of golden seal and borax to be used.

(5.) **Prolapsus of the Vagina.**—Cases of partial and com-

plete prolapsus of the vagina are common in large, flabby women who have been addicted to self-abuse, or tight-lacing, or borne many children, or had numerous miscarriages, and who have large, capacious vaginas. It may be also due to lifts, strains, coughing, self-abuse. The partial form is more common than the complete. When the front part alone is affected, it draws down the back portion of the bladder, and is called *vaginal cystocele*; if the back wall of the vagina falls down, it draws down the front wall of the rectum, and is termed *vaginal rectocele*. In the former case, urine is apt to accumulate in a pouch formed by the bladder; the latter a pocket forms, in which hard fecal masses are retained, causing a sense of weight and irritation.

Symptoms.—Prolapsus, or protrusion of the vagina, either alone or accompanied by prolapsus of the uterus, if it is complete, that is, involves the entire vagina, it forms a projecting tumor at the vulva, its surface inflamed or excoriated; bladder is very irritable and there is great difficulty in emptying it. It gives rise to much suffering, pain in the back, thighs, and bearing-down; and reflex symptoms, as headaches, spasms, or hysterical attacks.

Treatment.—The bladder and rectum must be emptied daily; the patient placed upon tonics, as cinchona and mineral acids, or sulphate of quinine, and aromatic sulphuric acid, or nux vomica and fluid extract hydrastis; the most nourishing food, and as much rest in the recumbent posture as possible. There should be an avoidance of straining, lifting, coughing, and above all things, tight-lacing. Injections of solutions, or infusions of alum, sulphate of zinc, oak bark, hemlock juice, etc., one or the other should be resorted to thrice daily, and pastiles of tannin and kino introduced at bed-time, it being clearly understood that before any of these are used, that the protruded walls be returned. There is no good in a T bandage and a pad or compress, because the pressure on the waist overcomes all benefit; neither is there any use in pessaries, as they make matters worse. A piece of silk sponge cut in the shape of a pear, base upwards, medicated with tannin, may be of some utility. Cold water hip-baths are not to be neglected. If these simple means fail, after a fair trial, then a radical cure can readily be effected as follows: In diminishing the calibre of the canal, in exciting seven pillars of plastic inflammation, or effused lymph to prop it up. It is performed as follows: Bladder to be evacuated, rectum thoroughly syringed; the vagina to be washed out with a quart of soapsuds; the protrusion returned; then introduce a proper-sized speculum, with a window; wipe dry the part of the vaginal walls opposite window; then take, chemically pure nitric acid and paint a vertical

streak one-quarter of an inch wide and two and a half inches long; paint it neatly and carefully seven or eight times; when finished, turn speculum half an inch and repeat the same process by making another, and another, until seven good streaks are made. Before removing speculum, fill it with a piece of lint, saturated with olive oil, which, hold firmly with a ramrod; then withdraw the speculum, leaving the oiled lint in vagina. Administer one grain of opium, every three hours, to lock up the bowels; keep patient in bed ten days, with a catheter in bladder; permit no straining, laughing, or lifting for some time; bowels to be opened with enemata, or cascara sagrada. This is the most effectual method, if well performed. The oiled lint need not be disturbed for a week, unless there is some uterine difficulty above; if there is, it may be necessary to remove it inside of twenty-four hours. On the removal of lint, injections of cold linseed tea or slippery-elm-water; all through, pushing tonics and good diet.

(6.) **Vaginal Tumors.**—Common growths on vaginal walls are:

Mucous Cysts.—The orifice of the mucous follicles may become closed from some cause, and the follicle may be dilated into a cyst; they may be superficial or deep-seated; if they can be easily reached, puncture, and use ozone et chlorine wash.

Fibrous Tumors.—A nodule of fibrous tissue is often found imbedded in the vaginal walls in sub-mucous tissue. They are liable to give rise to hæmorrhage. They are best removed by dividing the mucous membrane over it, and shelling it out with handle of scalpel.

Polypus of Vagina.—May be either of three kinds, (see *Polypus of Nose*), and may give rise to bearing-down, leucorrhœa, irritable bladder, hæmorrhage. They may be snapped off or ligated, and, after their removal, one application of ozone et chlorine, and then washes, as for leucorrhœa.

DISEASES OF MENSTRUATION.

In the Caucasian female menstruation takes place between fifteen and forty-five years of age; in some cases a little sooner, in others later. The sanguineous exudation, in health, takes place every twenty-eight days, and in quantity varies from one to four ounces, and is unaccompanied by pain. Two-thirds of all ladies menstruate about the end of the month, the other one-third about the fourteenth. In a condition of health, this periodic evolution should be regular; no arrest, nor excess, nor difficulty, only during pregnancy and nursing, when it should cease. If it does not suspend during pregnancy, and for fifteen months after the birth of the child, the proper duration of lactation, measures must be taken to cause its disappearance, as it is

highly detrimental to the health of the child. These measures should consist of an avoidance of coition, or reading of our modern literature, in the daily use of hip-baths, and remedies to strengthen the system. There are three different morbid conditions of menstruation,—amenorrhœa, dysmenorrhœa, and hæmorrhagia.

Amenorrhœa.—An absence of the menstrual flow. It is met with under two forms:

(1.) *Retention of Menses.*—This may depend on a variety of congenital conditions, as arrested development, organic affections, malformations, such as absence or atrophy of ovaries, uterus. Those organs may be present, but vagina may be absent, or suffer occlusion, so that if the menses are secreted, that they cannot find their way out. It may depend on some disease of brain, spinal cord, or blood. A large percentage of such cases can be rectified either with medical treatment or some surgical proceeding.

(2.) *Suppression of Menses.*—This is the most common form of amenorrhœa. The flow having appeared, been properly established, for a longer or shorter time, has, from some cause, become suddenly arrested.

The front part of the uterus being very profusely supplied with branches of the sympathetic nerve in highly-civilized females, the menses, while on, are liable to cease or stop from violent emotion, grief, anxiety, or from cold, damp, exposure.

Instead of ceasing suddenly, as in those cases, it may disappear gradually, returning at the proper time, but becoming less and less, and then entirely stopping. It is liable to cease in acute and chronic disease, as in fevers, blood-disease, especially anæmia, cancer, tuberculosis, albuminuria. In all cases the greatest care should be observed, so as not to overlook pregnancy. The suppression is always attended with some constitutional disturbance; great, if sudden; not so well marked, if slow and gradual.

Treatment.—If the case is seen at once during an attack of acute suppression, there should be an effort made to re-establish the flow, by alcoholic vapor-bath, with hot mustard foot-bath; put to bed between blankets, with hot bricks to feet, and dry heat to vulva or over bladder, consisting of baked bran, or hops, or chamomile flowers, in bags. Aconite, with compound tincture of serpentaria, administered internally, with infusion of pennyroyal; no cold drinks nor ice. If several days have elapsed, it is useless to try the above, or any other means, but begin at once and prepare patient for next period. Bowels should be regulated, clothing warm, flannel round waist and hips, warm foot and hip-baths, nourishing food. If there is any special disease it should be attended to, especially anæmia,

with acetate of iron three times daily, with cinchona and mineral acids; and about a week before the expected period, begin with the compound betin pill, one or two three times a day; and if the case is stubborn, put mustard plasters on the nipples, for a short time before bedtime, for one or two nights. The compound betin pills excel all drugs in their mildness, efficacy, and certainty; they arouse the inert, sluggish uterus into active life, restore its natural movements, and impart tone and vigor; they are our best emmenagogues, and excel all other drugs in their prompt action. They supersede entirely those old and deleterious drugs, such as cotton-root, savin, aloes, ergot. As soon as the flow is established they are to be stopped, and resumed the following month about seven days before the expected period. Ladies who suffer from habitual suppression, or where the flow is scanty, or who dread early suppression, can maintain menstrual activity for a long length of years, and thus keep the freshness of youth in their nervous system and skin indefinitely.

Vicarious Menstruation may occur as a form of amenorrhœa; that is, the menses may be suppressed at the vaginal orifice, but are thrown off by the nose, mouth, eyes, ears, or blood-stains by the skin, by ulcers or by necrosis, if present, or by odors about umbilicus, or eruptions.

The real cause of vicarious menstruation is either inertia or atrophy of the uterus; so great that the uterine wave is abolished or abrogated. The cure consists in stimulating the uterus with hip-baths, horseback exercise, or moderate walking exercise, the betin pill, narcotics, iron, pulsatilla, cinchona, and most nourishing food.

DYSMENORRHŒA.

Difficult or Painful Menstruation. There are three varieties met with in practice:

(1.) **Neuralgic Dysmenorrhœa.**—Nervous dysmenorrhœa is very common among highly educated and refined ladies—those who have developed their nervous systems at the expense of the physical, those who have insufficient exercise for body, who lounge and keep reading our fictitious, debasing, modern literature—that deadly poison which undermines their nervous systems. It may appear at puberty, but more generally it comes on from enervating causes after some years of painless menstruation, especially in the unmarried. In married life, it may come on from the irritation of frequent abortions, and the use of means to accomplish that act. It may be due to incompatibility in the sexual act.

Symptoms.—General languor, lassitude, debility, headache, with pains in the back, sacrum and lower part of abdomen,

coming on a few days prior to period; an aching soreness of inner and upper part of the thighs; bearing-down, with a sense of weight in the pelvis. As soon as the discharge comes on freely, relief is promptly experienced; if the flow is scanty, and comes on in slight gushes, the suffering is often excruciating; it becomes paroxysmal, pain comes and goes; often considerable pain in left ovary, sometimes in both; no swelling or heat, or increased sensibility in parts. There is flatulence, constipation, hysterical symptoms or convulsions.

Treatment.—During the attack, a warm hip-bath, teaspoonful doses of solution of morphia, every half hour, till relieved, with warm infusions of boneset. Then discontinue. A better plan is to let her inhale thirty or forty drops of chloroform, and give hyperdermic injections of one-quarter of a grain of sulphate of morphia; that affords instantaneous relief. If aware of attacks coming on, they may be prevented by applying a belladonna plaster across loins, four by nine inches long-ways across the back; the administration of tincture of belladonna internally, till throat becomes slightly dry and pupil dilated; the introduction of a pastile up vagina, and suppository up rectum, every night at bed-time, each containing one grain of opium and one-quarter grain extract of belladonna. The above to be commenced five days before period.

From two to three weeks during the interval, the following treatment should be carried out vigorously: The bowels to be regulated with cascara; daily, tepid alkaline bathing, followed by shower-bath or friction; flannel next skin, especially over loins; most nourishing food, easily digested; avoid tea, coffee; sleep on mattress, not over seven or eight hours; abundance of exercise, games, moderate work, so locomotion is active; horse-back exercise; sedentary habits and novel-reading to be forbidden; if married, sexual intercourse to be avoided. Then place patient upon two of the following remedies each alternate week: Glycerite of ozone, ozone-water; hypophosphites in meat extract, glycerite of keptaline; cinchona in port wine, or mineral acids and cinchona. If there is any dyspepsia, stomach tonics in addition.

(2.) **Congestive Dysmenorrhœa.**—Membranous or inflammatory dysmenorrhœa may occur at any period of life, and in the large percentage of cases it is associated with plethora and sanguine temperament. Its true origin is not well understood; indeed, it is in uncertainty and doubt, but one thing is very certain, that there is congestion—a sort of inflammatory condition of the internal lining membrane of the uterus. Whether this hyperæmia is in the uterus, or in the ovaries, or in the pelvis, generally it is immaterial.

Causes.—Aside from the diathesis, gouty or rheumatic, and

pelvic irritation, general plethora of the genito-urinary organs, from sedentary habits and occupations, it may be caused by local irritation, as abortion, exposure to cold and moisture; sluggishness of the liver, displacement of uterus, and metritis.

Symptoms.—Suffering begins four or five days before each period, in a general sense of languor, or weariness, with headache, pains in the loins; a feeling of weight in the pelvis; general restlessness, and irritability of the bladder; there are heats and colds, with other evidences of nervous depression. The weight in the uterus becomes a pain of a throbbing character; then dragging in the back, aching in the hips and thighs, and bearing-down, especially when pain is on. Discharge, after a few days suffering, makes its appearance, usually slowly and gradually, scanty at first, but subsequently, after the system is relaxed by the condition of prostration, it comes freely. It may come in small clots, or shreds, or flakes of membranes, or sometimes in the form of a large pear-shaped clot, covered with a false membrane, an exact cast of the cavity of the uterus. This membrane looks like the epithelial membrane lining the cavity of the uterus, analogous to the decidua. In some cases there is no congestion of the uterus, in others it is much engorged, often displaced; ovaries very tender, with swelling and tenderness of breasts. If the portal circulation is sluggish there will be piles.

Treatment.—During the period, warm hip-bath, free action of bowels, opium to relieve pain; belladonna and opium pastiles and suppositories; hot, relaxing teas, like infusion of bone-set, same as in the neuralgic form.

During the rest of the month, or when the period is over, patient should have the best of food, bowels to be open twice daily, bathing daily, flannel, clothing, general alteratives and tonics, embracing such as ozonized syrup of phytolacca, with iodide of potass, ozone-water, glycerite of ozone, iodide of lime, or lime-water, and tincture of iodine; with such bitter tonics as gentian, collinsonia, kurchicine. With those remedies, in the course of three or four months, a cure is effected. The plan is to select two, a tonic and an alterative, administer for a few days, then change on to other two, and so invariably keeping patient on either iodide of potass, or iodide of lime.

To inject the uterus once a month with four ounces of distilled water (milk warm), with twenty grains of iodide of potass dissolved in it, has a most salutary effect; but American ladies, being so highly civilized, do not bear it well, it producing reflex symptoms that are often alarming, such as nausea, vomiting, numbness in hands and feet, and prostration. To guard against such, the four ounces should be placed in a hard rubber syringe, just holding that amount, with a male catheter point, carefully

introduced into the uterus, and thrown in very gently, allowed to remain a few minutes, then every drop drawn back into the syringe, and then withdraw it. If performed carefully, and with nicety, there need be no trouble; it hastens a cure amazingly, by producing a healthy action in the walls of the uterus. If there are no very distressing effects, it might be permitted to remain a short time, but in all cases never leave a drop in uterus. The best period to do it is about the middle of the month, between the two periods. It is rarely necessary to repeat over three times in all. Moderate exercise; recumbent posture better for rest than sitting; malt or alcoholic liquors, and sexual intercourse, to be avoided. Conception never takes place in a well-marked case.

The shreds, clots, or coagula, are always loaded with the micro-organism bacteria.

(3.) Mechanical Dysmenorrhœa.—This term is applied to a thickening, induration, cartilaginous degeneration, or stricture of the external and internal os uteri, or neck, or a narrowing of the entire canal of the neck. It may also be due to some tumor, or uterine displacement, as anti or retro-flexion; these latter we do not include in the following remarks. What we speak of here is either a narrowing of the canal of the neck, or its infiltration with lymph, or cartilage, or a true stricture of the external or internal mouths of the cervical canal—conditions that cause sterility as well as dysmenorrhœa.

Causes.—The causes that give rise to this induration, or mechanical obstruction, are inflammation, such as acute and chronic vaginitis, leucorrhœa, self-abuse, excessive coition; congenital irritation common cause.

Symptoms.—Are those indicative of obstruction to the escape of the menstrual fluid. There is the languor, prostration, nausea, vomiting, pain in loins, hips, and thighs, bearing-down; pain in ovaries and uterus, usually some time before a scanty flow makes its appearance. When discharge does come, it is in gushes, each gush preceded by pain, and an aggravation of all the symptoms. The bladder becomes irritable, and there is often considerable tenderness over both uterus and ovaries; anæmia, constipation; very much resembles labor; uterus struggling to expel its contents. An examination of these cases reveals either a small os uteri, or an orifice of the natural size, but the canal leading to the internal os, thickened, indurated, strictured, or suffering cartilaginous degeneration—conditions that can readily be felt with the finger, or the uterine sound. In some cases the obliteration is confined to the inner os. In nervous or neuralgic dysmenorrhœa, the repeated irritation from month to month often aids in bringing about this condition.

Treatment.—Usual treatment during an attack, as already laid down, with the exception that tincture of green root of gelsemium, or lobelia, might be added to more effectually relax. There are several methods of treatment that can be tried during the intermenstrual period. In all it would be well to put patient under an alterative and tonic course of remedies, as ozonized saxifraga, phytolacca, glycerite of ozone, iodide potass, cinchona and mineral acids, attending to all minor symptoms, as dyspepsia, constipation, anæmia. Twice or three times a week, for half an hour or longer, get the neck of the uterus in a speculum, pull it well down, having previously saturated some ozonized clay, made into a creamy mass with a little water, and incorporated into it cotton-wool, which, introduce through speculum right against the neck, allowing it to remain during the above period, then withdraw, and wash out with vinegar. The ozonized clay dissolves, or disintegrates the lymph or cartilaginous matter. Then three times a day until next application, vaginal injections of borax, or soapsuds (Castile), or chlorate of potassa, and repeat. If it produce no irritation, it might be used every other day.

Dilation, by means of sponge-tents, sea-tangle, and metallic and rubber dilators are worse than useless, setting up more irritation and additional obstruction. Those expanding instruments may produce no bleeding, but they are very destructive, and if often repeated are most harassing to the patient, and invariably after their use the canal returns to its former size, even a little narrower. There is no good in either slow or rapid dilatation, and even the new method of dilating, lacerating, tearing, by divergent blades, is useless; there is danger of irritation, if not of metritis, pelvic cellulitis, or peritonitis.

Incision is the best plan, as it gives rise to no suffering, gives a sure result, and is free from danger, if properly performed, and rapid. This is best performed by a pair of scissors, made for the purpose, one blade terminating in a probe-pointed end, which enters the os; the other by a hook, which seizes and fixes the vaginal portion at the point desired. One stroke of the scissors divides the intervening tissue in a straight line. The proceeding is then repeated on the other side of the os, and the operation is then completed. There is a tendency to contract again even after that. To meet this, there should be a slight nick made of the internal os, just sufficient to divide the mucous membrane and some of the superficial circular fibres of the muscular coat. This will allay spasmodic sphincteric action. The incision should be no greater, because it is superfluous, and even dangerous. At the mouth of the inner neck there are bloodvessels in profusion, and of considerable size. Large veins, without valves and small arteries, gap at

the uterine level, and are apt to bleed very profusely if uterus is cut into. A piece of lint, saturated with the juice or extract of hemlock bark, is to be inserted between the cut edges, and patient kept in bed under opium.

If the patient and friends are willing, the best plan, if the suffering is great, is to perform the operation at once, as it is only a waste of valuable time to exhaust the usual list of remedies on her first.

MENORRHAGIA.

Profuse menstruation, an abnormal increase in the catamenia, in quantity and in frequency. It is called *menorrhagia* when the menstruation is copious, the catamenial period being prolonged, the interval diminished, the quantity of blood discharged excessive. *Metrorrhagia* is a term used to describe a copious and continuous flow of blood during the interval, not necessarily associated with menstruation, but more frequently blended with tumors, polypus, cancers, and retained products of conception. The uterus is the only organ in the body from which blood flows at stated intervals. So long as it does not exceed four ounces, and occurs only every twenty-eight days, it is normal.

Causes.—As the uterus is freely supplied with branches of the great sympathetic, it may be due to grief, sorrow, worry, or excitement, giving rise to relaxation of uterine tissue. Repeated abortions devitalize the uterus, under which it loses its contractility; besides, wearing sponges, rings, pessaries, and excessive sexual intercourse, all impair its vitality and bring about an excessive flow. Debility is a common cause, whether it be that of disease, such as tuberculosis, Bright's disease, affections of spleen, or long nursing, or over-work, or lifts, strains; any inordinate excitement near period. It may be a symptom of metritis, uterine or ovarian tumors; of pregnancy, when the after-birth is over the mouth of the uterus; cancer of uterus, polypus, moles, displacement of uterus, and a variety of other causes.

The symptoms are the excessive flow, with debility and anæmia.

Treatment.—During an attack, enjoin rest of body in recumbent position in bed, head low, foot of bed somewhat elevated. With this horizontal rest, ease of mind, no hot drinks or hot food, and the patient is not to get up for either urination or defecation, for the blood pressure is greatly increased by stooping or straining. Diet to be nourishing—beef essence, milk and lime-water, eggs, toast.

As to medicines, the best is sulphuric acid in the mixture; sulphuric acid, turpentine, and alcohol, administered frequently.

It acts promptly. If the bowels are constipated, the aromatic sulphuric acid could be combined with the saline mixture, in fifteen-drop doses, and repeated frequently, as no injury is done if the saline acts upon the bowels. The sulphuric acid acts quickly. It can be given in frequent doses.

There is a great objection to the use of ergot; it may be a good styptic, it may act well on lumbar portion of cord as a stimulant, and thereby contract the uterus, but its faculty of causing embolism renders it a bad drug when the heart is rendered irritable by loss of blood.

The beneficial action of digitalis is most decided; it slows the heart, astringes the bleeding vessels, braces up a bleeding womb. It should be given in small doses of eight drops every two or three hours till pulse reaches sixty.

Oil of erigeron does not compare favorably with either gallic acid, barium, or alum; with aromatic sulphuric acid, it is over-rated by a class of ignorant empirics.

One of the most powerful local means of aiding a renewal of life in the uterus, and inducing contractility, is dry heat, in any light vehicle, as chamomile flowers, bran, hops in bags or pillows, applied over the uterus and vulva hot. The old doctors swear by cold, but cold water, or ice either, over pubes, or up vagina and rectum, is positively injurious. If these means fail, resort at once to a plug; in the unmarried it is difficult sometimes to insert, but in married women there is no difficulty. A sponge answers the purpose most admirably, or several small ones; they may be saturated with a solution of carbolic acid, or tincture of iron, or vinegar.

The bleeding surface could easily be reached by injecting the uterus with carbolic acid, or perchloride of iron in solution, but it is very liable to be followed by bad results; even injecting and immediately withdrawing the fluid is not to be recommended. The syringing or swabbing out vagina is of no utility for the hæmorrhage; only good for comfort and cleanliness.

When there is no clot or debris of placenta in the cavity of uterus, the above is usually sufficient.

During the two or three weeks that intervene between the attacks, the patient should be placed upon the compound viburnum, so as to strengthen up the uterus. Meantime, remove all causes, if possible, and then the general remedies should be two of the following, changed weekly, and persevered with: Compound tincture cinchona and nitromuriatic acid; aromatic sulphuric acid and quinine; glycerite of kaphaline, port wine, and Peruvian bark; teas of life root, helonias, and beth root; moderate exercise, best of diet, flannel clothing.

Other Remedies sometimes Used.—The mother's cordial is often of great utility; so is the fluid extract of stylosanthes. As a

uterine invigorator, the kurchicine may be used in all stages of hæmorrhage from the uterus, and in all the varied sympathetic affections to which that small, but all-governing, omnipresent organ is liable.

INFLAMMATION OF THE UTERUS.

Inflammation of the substance of the uterus, or, as it is termed, metritis, may exist in an acute and chronic form.

(1.) **Acute Metritis.**—It may involve a part or the entire organ; rather a rare disease in unimpregnated uteruses, but very common associated with impregnated states.

Causes.—The causes of this condition of partial death are, exposure to cold, damp, and excitement when menses are on; shocks of all kinds, falls, blows; irritation from sponges, rings, and pessaries; abortions; violence from the instrument, as a whalebone, knitting-needle, in performing the act, and in the subsequent non-expulsion of all the membranes and clots; lingering labor, tedious and painful violence from instruments in delivery; the use of emmenagogue drugs, as savin, tansy, aloes, ergot; the use of injections. It is doubtful whether or not, in very highly civilized women, it may be brought on by grief, worry, passion. Poisons, as the imperfectly-washed hand of an uneducated physician in removing the placenta, or pieces of the placenta; or in administering ergot erroneously, causing the uterus to contract; or a clot, or coagulum, which excites the inflammation; gonorrhœa, the forcible entry of large hands.

Symptoms.—Should the shock come on the uterus during the menstrual period, or during the lochial discharge, the flow is suddenly arrested, and this will also happen in hæmorrhagic congestion. Simultaneously there is sharp, lancinating pain in the uterus, followed by rigors, and a fever of a high grade. Patient lies on back, knees drawn up; features sharpen and become anxious; eyes look sunken; tongue coated, pulse rising; great tenderness over uterus, a sense of fullness and weight. There is throbbing above pubes, in groin, and perinæum; great pain in sacrum, irritable bladder and rectum. Either constipation or diarrhœa; if the latter, tenesmus, which is troublesome. Usually nausea and vomiting, which is great or persistent if the outside covering, or peritoneal coat of uterus, is involved. The os uteri, to the finger, is hot, congested, patulous, sensitive; to the eye, it looks of a scarlet redness. The secretions of uterus acid and acrid; usually after twenty-four hours there is a watery discharge, then bloody, or sanguineous, mucous, and serous; pains become acute and bearing-down, intermittent, cutting, but at all times the uterus is the seat of pain, which is aggravated by pressure of the hand, or bed-clothes. This pain extends to perinæum and front part of

thighs. If case does not ameliorate, symptoms assume a typhoid form. Acute symptoms rarely last over seven days. Recovery may take place when the damage is not great, and the patient's affections not blasted.

In unfavorable cases abscesses form in the structure of the uterus, or other tissues, as the pelvic, areolar tissue, peritoneal membrane; substance of liver and stomach becomes involved, and gangrene sets in; or, in another class of cases, it may leave chronic inflammation, or enlargement, or induration of uterus, labia, and a muco-purulent diarrhœa.

It may come on at any time if violence is inflicted. After parturition, a lady is not quite safe from an attack until after five or six weeks. It is exceedingly common and very fatal, and with very ordinary care it might be rare. Ladies, educated and well trained, should be the accouchers, instead of gaunt, egotistic males, of uncouth habits, filthy and ignorant, with their elephantine fists. There should be a prohibitory enactment that no lecturer in a medical college, or hospital, should attend lying-in cases. All charlatans or empirics should be severely dealt with for instructing ladies in the dreadful act of fœticide, which is so common. If these were duly attended to, metritis would be as rare in the United States as in other countries.

Treatment.—Formidable as metritis generally is, still, if seen early, much can be done to aid recovery. Suffering is much relieved by the recumbent posture and complete repose. Commence at once with opium and tincture of green root of gelsemium—half a grain of opium every half hour, with a few drops of the gelsemium (same as in peritonitis, pushed to narcotism). If we delay, or don't come right up to the mark of energetic treatment, the patient will die; don't hesitate; aconite does well, combined with gelsemium; excite an action on the skin with an infusion of asclepias, or boneset, or jaborandi; mustard over pubes for an hour, then followed with hot poultices of linseed and opium; keep patient on back, hips elevated; enemata of linseed tea, with tincture of opium, irrespective of diarrhœa or constipation, twice a day; injection per vagina, of the same, or else an infusion of chamomile and carbolic acid, thrice daily; dry heat to vulva; hop bags. If there is the debris of a placenta in the uterus, then that organ should be washed out with chamomile and borax, or carbolic acid injection once a day. The great aim in the treatment of the case is narcotism; the opium relaxes neck of uterus sufficiently to permit the escape of clots or other bodies. If there is much distressing tenesmus, and pain in the sacrum, suppositories of belladonna and opium should be used.

Indeed, whatever the cause, from shocks, fright, lingering

labor, or violence, or whatever the symptoms may be, they can often be very successfully combatted with the opium and gelsemium; under those drugs the inflammation soon subsides, becomes tractable and manageable. Great care should be exercised lest abscess takes place, and it is well as the active indications subside, to begin with small doses of quinine and antiseptic drugs.

The period of treatment is so short, that if the patient can be tided over the seventh day, the condition of death, at least, may be obviated. Nourishment must be meagre, and increased as recovery progresses; otherwise, if patient do well, the treatment of chronic metritis must be followed out. She must be careful not to get about too soon, as indiscretion may lead to a relapse.

(2.) Subacute and Chronic Inflammation of the Uterus

—This consists in a low grade of irritation, either of the neck or entire body of the uterus, with effusion of lymph, which produces enlargement and induration.

Causes.—It may follow an acute attack, or be brought about by musturbation, tight-lacing, which causes local plethora, or engorgement, or frequent miscarriages, or abortions; wearing sponges, pessaries; whalebone, knitting-needles, recklessly used; gonorrhœa, excessive coition, cold, fright, and a sudden arrest of menses, or suppression; use of irritating injections; emmenagogue drugs.

Symptoms.—There is languor, lassitude, debility, pain in head and back, accompanied by a sense of weight at bottom of abdomen; a bearing-down; aching in thighs and hips, with severe griping pains in uterus, which is very sensitive to external pressure; there are heats and colds, or slight febrile attacks; loss of appetite, constipation, difficulty of breathing; and the headache is often intolerable. To the finger, neck of uterus is very tender, and has more heat than the surrounding parts; to the eye, it is a little redder, but considerably thickened, and there is leucorrhœa. The plethora or congestion of the uterus, with augmentation of bulk, causes it to descend, and produces some abdominal swelling. This increase in size and weight is due to relaxation of its tissues, and they being filled up with serum, lymph, blood, now grave changes take place, owing to the lost contractility and engorgement; its functional activity is entirely abolished; there is inertia, and the organ is predisposed to organic changes. The changes are not uniform, they depend often on conditions, as the transition to puberty, confinement, or forced celibacy in virgins, or mental states; engorgements, indurations, ulcerations, are frequent results. These conditions are much aggravated if the chronic inflammation occur late in life, for then if the germs of tubercle, or cancer,

or any dyscrasia lurk in the system, it will be likely to manifest itself. In chronic metritis there is apt to be bladder trouble, rarely pain in sacrum, but possibly some pain if stools are hard. The entire train of symptoms of hysteria, in addition to the above, may be present. It may last a long number of years. The menstrual flow is usually excessive or may come on several times during the month.

Chronic inflammation of the uterus is one of the most common diseases among modern females, and renders their whole life a complete misery; and even if in mild cases they should marry and pregnancy take place, miscarriage at four and a half months will inevitably take place, owing to the stretching of the indurated fibres at neck, as the body expands, the irritation being carried to the fundus, and thus contractions are induced.

Treatment.—Patients suffering from this very chronic disease are usually able to be about, and are often engaged in their accustomed duties, although suffering greatly. If they are unable to rest a month or two, it renders the process of cure very difficult, because rest in the recumbent posture, in bed, with elevation of the pelvis, is one of our main standbys. The recumbent posture is always to be preferred to sitting, and gentle walking to standing still. When menstruation is absent, daily bathing, shower bath, if possible, with hip-bath thrice daily; the vagina should be syringed out three times a day with demulcents or emollients, as linseed tea, infusion of marsh mallow, slippery-elm, or chamomile flowers; and as the case improves, alkaline injections, as soapsuds, borax-water, chlorate and permanganate of potassa; the temperature that is best is slightly tepid; both bathing and injections to cease during the catamenial state, and when that is over to be resumed. Flannel clothing; bowels to be kept open once a day with cascara; the appetite to be stimulated with tonics; the very best of diet—beef, mutton, game, poultry, boiled white-fish, eggs, milk, coffee. If digestion is faulty follow with pepsin. Then place patient upon alteratives and tonics, general course, with a class of remedies bearing more especially upon the uterus.

The alteratives should be administered two hours after meals and should consist of one of the following for a week; then another, selecting the two that does the most good, using them in alternate weeks: Iodide of potass in compound syrup of phytolacca, compound viburnum, compound stillingia, iodide and bromide of potass, macrotys in compound yellow dock.

Tonics before meals, selecting from the following: Glycerite of ozone, glycerite of keptaline, ozone-water, compound tincture of cinchona and nitromuriatic, aromatic sulphuric acid and quinine, port wine and Peruvian bark.

Special Remedies.—Beth root, life root, helonias; fresh infusions daily, drank freely; pastiles of iodide of potass and beladonna every night; mother's cordial.

Chronic Catarrh of the Neck of Uterus.—Is the most common of all diseases that afflict modern women. Catarrh of the neck of the uterus, called by the physicians *ulceration*, so as to make it appear a formidable affair, and frighten their patients. It is true the disease is chronic, but erroneous statements regarding it are unnecessary.

In this affection the mucous membrane is swollen, red, and bleeds easily, and exudes a muco-purulent fluid or pus. This can be readily seen. The mucous membrane has a punctate, granular appearance; its papillæ are often denuded, and only affects the neck, which is distinct from the body of the uterus, and constitutes a large, open gland, which is liable to catarrh. The disease is of the greatest importance, on account of its frequency, being the most common.

Catarrh of the neck is caused by sexual excesses, wearing sponges, rubber tents, childless marriage, abortion, full-time delivery, cold, rheumatism, gout, gonorrhœa, suppression of the menses, occupations, masturbation and other forms of irritation.

Symptoms.—The ordinary symptoms are pain in the back, about the base of the sacrum, which is the common seat of cervical pain; pain down the thighs; a felling of weight about the rectum or lower part of the belly, and a variety of reflex symptoms, as headache, languor, and a train of indescribable sensations. What chiefly attracts the patient's attention is the extraordinary discharge, leucorrhœa or whites being profuse, or otherwise of a thick, yellow, viscid color, imparting a dirty grayish-yellow stain, varying from the healthy crystalline mucus to yellowness or greenness, or thick,ropy, yellow pus.

A white, milky discharge cannot be called morbid; it is the vaginal mucus in excess, and occurs in weakly women, after a long walk. A glairy, albuminous crystalline discharge can scarcely be called morbid, as it comes from the neck, when the patient suffers from extreme debility; but a yellowish, greenish discharge indicates disease. Here one speculum examination is necessary, and it should be made by the duck-bill speculum, in the presence of some lady friend or the husband. The mirror-glass speculum shows the disease most beautifully, if there is any, and the attendant can see it. No other speculum examination is necessary. The patient can now, in nearly all cases, manage her treatment successfully; remove the cause, if possible. She should be placed upon alteratives, as saxifrage; and uterine tonics, as the mother's cordial. Or, the vagina should be injected with borax or permanganate potass injection thrice daily, for cleanliness; one injection of the ozone et chlorine

fluid, performed by the patient herself; then the borax and golden seal injection should be used while the monthly period is absent. The use of astringent washes, as oak bark, or alum are injurious, because they irritate. No cauterization is necessary.

The whole treatment is simple, and any lady of average intelligence, with a good Crescent syringe, with the lotions or washes enumerated, can readily cure herself of an affection which years of treatment and innumerable speculum examinations fail to relieve, and thus save her money, and often her affections. We deprecate this uterine speculum business, or trade, or prostitution, as we do this uterine massage; each having a special object in view—the alienation of her affections and emptying of her purse.

ULCERATION OF THE NECK OF THE UTERUS.

A breach of continuity of, or on, the neck of the uterus may be the result of some injury, but more generally it is the result of inflammation, congestion, or effusion of lymph. It usually takes place about the neck. It is a condition not nearly so common as is imagined. It is true, chronic inflammation, with congestion, catarrh, and thickening of the neck, is very common, but comparatively few terminate in ulceration,—few cases in which the lymph breaks down. This subject of ulceration of the os uteri is a stigma upon the medical profession, so called. In order to explain ourselves we shall deviate from the subject a little. The medical profession in the United States are a pack of knaves and vultures, let loose with little brains, and a skim-milk education, superficial in the extreme, to prey upon the community. They are destitute of an education, because they have not brain capacity to receive it; and if they had, they have no teachers capable of imparting it; besides, most of them are but imperfect scholars in ordinary branches, and are destitute of all the qualities of gentlemen. Those human vultures are so numerous, that in all our large cities or towns there is one to every two hundred and fifty inhabitants. They must live; and the first thing that concerns a newly-fledged M. D. is to procure a uterine sound and speculum, and on those he places his reliance for future success and fortune. With this he becomes the great moral force of the profession, and stamps his prestige upon the page of time. Ladies, married or single, are the prey of the viper. If he is consulted about a headache, indigestion, defective vision or hearing, or even in-growing toenail, there must be a vaginal examination, as there is something the matter with uterus. This is done every time anything is wrong. It is pronounced an obscure case; another introduction must be made, and another; her affections must be alienated to the scoundrel, and thus many loving wives and good

daughters are made his victims—he becomes the social ruin of families.

The knaves, or charlatans, even coin new names for trifling maladies, and invent diseases. Once they get a grip, they keep on with endless examinations, speculations, applications, and treatment, and continue on for months or years at this nefarious business; and then, by some accident, the patient is removed from his care, she becomes quite well, and has no further need for speculum, pessary, or caustic.

The older members of the profession are to blame for thus letting loose annually such a horde of vultures.

Women are sensitive and imaginative, know little of physiology, but feel keenly any ache, pain, or irregularity, and attach more importance to it than there is any need to. So, if she has dyspepsia, or dysmenorrhœa, and a slight bearing-down, she is much impressed, and consults one of those mountebanks; her fate is at once sealed, by the designation “ulceration of the neck of the uterus,” when nothing is the matter but fatigue. It is the fashion, they live by it, it is their bread and butter. Poor lady, three times a week she trudges to his office, and has his applications applied for a disease that does not exist, and, if it did, should be cured without such a mess of degradation. This is an every-day game.

We have another class, meaner still, who go for ulceration and displacement. This class assert that there is scarcely a woman living whose uterus is where it ought to be. It is antiflexed, retroflexed, or verted this way or that way. An examination by speculum must be made; and as he gets a large percentage from some unprincipled “uterine supporter” patentee, or manufacturer, there will be a variety of contrivances tried, but none answer till his favorite is reached; and, oh! the fitting-in, the adjusting and readjusting, in order to cure headache, irritation of the bladder from uric acid, or pretended albuminuria, and a thousand other ills that do not exist!

Now, where this is done by an educated gentleman, a Christian, one who knows what he is doing, and what difficulty he is dealing with, if there be one, much good may be accomplished; but when imitators, pretenders, rascals, go at it for cash, nothing but harm follows. With these fellows there are muddling and meddling of the most disreputable kind, and patients get tired of it, their money and patience become exhausted, they give it up; and if there is something the matter, become chronic invalids, and are a nuisance to themselves, relations, and friends.

But we will not digress further.

In all cases of chronic inflammation there should be no let up in treatment until the thickening of the neck, produced by

effusion of lymph, is removed by alteratives, alkaline vaginal injections, and pastiles of iodide of potass.

(1.) **Simple Ulcer, or Abrasion.**—An excoriation, or erosion of the lips of the neck of the uterus, is the simplest form of ulceration. The epithelium is simply removed from the part; the villi, with the fine net-work of capillaries, can be felt, velvety to the touch, or seen by the speculum; there is no redness of any moment.

Symptoms.—There is a general depression of the health; headache, and languor; leucorrhœa, pain in pelvis and sacrum, irritation of ovaries, bearing-down, aching in thighs, indigestion, flatulence, with irregular action of bowels. Menstruation is likely to be disordered in some way.

Treatment.—Regulate bowels with cascara, or some mild agent; stimulate the appetite with tonics; prescribe best food, beef, mutton, poultry, milk, cream, eggs, fish, etc., and, if digestion is faulty, pepsin; tonics before meals, as port wine and Peruvian bark; compound tincture cinchona and mineral acids; sulphate quinine and aromatic sulphuric acid; gentian and collinsonia; and alteratives, as ozonized phytolacca, compound viburnum, and iodide potass.

Locally, after it has been ascertained to exist by one speculum examination in the presence of a mother or husband, no more are necessary. Neither is the use of caustic, or other trash, of utility. The patient can now accomplish the cure herself. If married, sexual congress should be held off for a few weeks. Then begin with hip-baths, thrice daily; vaginal injections, tepid at first, then gradually colder and colder, till the ordinary temperature of water is reached. Before using the medicated injections, it is well to wash out with Castile soap water, the tube of the syringe not to be inserted over two inches; patient sitting on a chamber, with medicated fluid before her, which is to be thrown up with force by the active pressure of the bulb of the syringe. The injections might with benefit be changed every three days, and should consist of solutions of borax, chlorate and permanganate of potass, lime-water, and tincture of iodine; and, after two or three weeks, astringent ones are to be introduced alternately, as infusions of oak bark, white pond lily, witch hazel, alum. To hasten a healing process, after retiring to bed, a pastile to be inserted, consisting of opium and borax, hazeline and tanin, bayberry.

In this simple manner any lady has her rapid recovery in her own hands, and she will soon recognize it in returning health and a disappearance of the symptoms, especially the discharge.

(2.) **Irritable, or Inflamed Ulcer.**—This is deeper-seated, involves the lips, but is vascular and red; the loops of the

capillaries have given way, and there is an excavation. It is sometimes quite extensive in persons whose vital forces are feeble.

Symptoms.—All the symptoms are much aggravated, more debility, even mental depression; the leucorrhœal discharge is profuse, and muco-purulent, and greenish; stains linen greenish; great headache, tongue coated, no appetite, anæmia, neuralgia; dirty, sallow hue of skin; bowels irregular, usually constipation; pain in the back, hips, and thighs, aggravated by exercise; reflex irritation of bladder, rectum, and breasts. There is often menorrhagia in this variety.

Treatment.—The same course of treatment as for the simple form, with the exception that it wants to be carried out with more vigor; secretions active; alteratives and tonics.

(3.) **Rodent Ulcer.**—In the simple, or inflamed, or deeper-seated ulceration, there is found in the discharge the living germs, bacteria and amœba, which render them communicable diseases to males if sexual intercourse is not avoided; but in the "rodent form," the micro-organism, *oidium albicans*, is present in large colonies, so that it is invariably to be regarded as a severe disease; one associated with a breaking-down of vital power, and not common in females who are well taken care of, or under thirty-five years of age.

Causes.—Irritation, over-crowding, meagre or insufficient food, filth, general breaking-down of vital force.

Symptoms.—It is to be regarded as a perforating, eating ulcer, with a bloody exudation; ulceration gradually and slowly extending. As it eats away, burrows, and perforates, complaint is made of heat, pain, and discomfort; thin, watery discharge streaked with blood. The constitutional symptoms are those of great prostration; headache, want of appetite, pallor, indigestion, constipation, great physical weakness; pains in back, thighs, hips; burning pain in uterus, and attacks of hæmorrhage. On examination, an irregularly-shaped, eating ulcer, with ragged or indurated edges. There may be several; they all look excavated. They may be dry, or glossy, but there is always blood dripping from their edges. When vital force is very low, they may eat away the neck and body of the uterus, and give rise to dreadful hæmorrhage. It is often mistaken by the inexperienced for cancer. It often destroys life, if not seen to and treated correctly before it eats into uterine vessels.

Treatment.—In the name of humanity, of good sense, and common decency, we protest against the modern treatment of rodent, or phagedenic ulceration, with such useless drugs as nitrate of silver, caustic potassa—drugs that are totally unnecessary and uncalled for in the local applications in uterine ulcer. If a caustic must be used, why not use the best, by first swab-

bing or washing out the uterus, and then touching with nitric acid, U. P. We repudiate caustics as barbarous, and unnecessary, when we have such invaluable antiseptics as ozone et chlorine, which could be used once every week or two, and followed by milder ones, four or five times a day. This preparation, thrown up the vagina, produces a perfect revolution in the ulcerated parts; it destroys the disease-germs that are causing the eating; stimulates the sound tissues, so that they put on a healthy appearance. The injection of the ozone et chlorine once every week, or two weeks, is most efficacious; and in addition, the first day or two, linseed-tea injections every two hours, and then injections of borax and golden seal, gold thread, and chlorate of potassa, or bayberry, lime-water, and tincture of iodine, every three hours; pastiles and suppositories of opium and belladonna. Alteratives and tonics, as in simple forms, with glycerite of ozone, chloride of lime, permanganate of potass, and the most nourishing food.

(4.) **Syphilitic Ulceration.**—There may be chancres on the os or neck, and colonies of germs lodged about the labia of the uterus, within the canal of the neck on the upper and lower sides.

Symptoms.—The copper-colored appearance of ulcers and mucous membrane; thickening and induration; the muco-purulent discharge is excessive from both uterus and vagina; patches of abrasions, or ulcers, are to be seen on the labia of the uterus. Menstrual function is irregular; most frequently menorrhagia. Besides, there will be syphilitic cachexia, loss of hair, enlargement of post-cervical glands, copper-colored mucous membranes, pain in breastbone and other bones at night, copper-colored eruption, nodes, mucous patches, etc.

Treatment.—Same as for syphilis, with the local treatment for rodent ulcer, which makes short work of the disease.

UTERINE CATARRH, OR ENDOMETRITIS.

Catarrhal, or croupy inflammation of the mucous membrane lining the internal cavity of the uterus.

Causes.—Ovarian disease; frequent abortions; the irritation of instruments; drugs, as bromide of potassa, sabina, aloes; sudden suppression of menses from cold or damp; masturbation, mental excitement, torpid liver, tight lacing, gout, rheumatism; incompatibility in married life.

Symptoms.—It may be met with in either an acute or chronic form. In the acute variety, the skin is dry, hot; general irritability, some fever, sallow complexion, loss of appetite, considerable headache, pain in loins and lower part of abdomen, sacrum, groin, and inside of the thighs. A sense of great heat and fulness about the pelvis, and bearing-down. Bladder very irritable; a desire to pass water every few minutes, which is

loaded with uric acid. Diarrhœa and tenesmus, and subsequently, constipation. Tenderness on pressure over ovaries and uterus. After a day or two, thick, ropy, tenacious discharge, which, after awhile, becomes muco-purulent, and is tinged with blood, and imparts a greenish-yellow, or greenish-red stain to the chemise, or other body linen. There is often piles.

The chronic form is the most common, and runs a tedious course, with headache, languor, lassitude, debility; great mental depression, obstinate dyspepsia, flatulence, and constipation. A sense of weariness, if not pain, about loins, sacrum, groin, inside of the thighs, and bearing-down. The discharge now is thick, ropy, tenacious; very abundant, glairy, like white of egg. Often, under the microscope, the sarcinæ and yeast-plant germs can be detected in it. The discharge is most abundant in the mornings, accumulating in uterus over night, or after lying down awhile; indeed, in bad cases, after being in the recumbent posture for some time, it will flow right out. The debility increases, and a train of other symptoms set in, as hysteria, convulsive affections, nausea, vomiting, tympanitis, tenderness of breasts, and menorrhagia, if the lining covering the fundus is involved.

Treatment.—The acute form is to be treated with rest, warm hip-baths, mucilaginous drinks; open bowels with cascara; give aconite, veratrum viride, and sweet spirits of nitre for fever. If pain is great, dry heat to vulva and over pubes; pastiles of opium at bed-time.

In the chronic form, which is often very stubborn, general alteratives in alternation with tonics, selecting from the following list one *alterative* and one *tonic* every week, and persevering with them: *Alteratives*, iodide of potass in compound phytolacca or stillingia, iodide of lime, or tincture of iodine in lime-water, glycerite of ozone. *Tonics*, port wine and Peruvian bark; compound tincture of cinchona and mineral acids; viburnum, compound collinsonia and gentian; glycerite of kephaline. Vaginal injections, thrice daily of infusions of hydrastis or bayberry, with borax; or injections of solutions of permanganate, or chlorate of potass, so as to keep the often acrid discharge from irritating vagina; bowels to be kept regular by a suitable dose of cascara at bed-time; treatment to be discontinued during menstrual flow. If after six or eight weeks' careful attention and use of above remedies, there is no improvement (which is a rare event), then it might be well to suggest injecting the cavity of the uterus with the solution of iodide of potass, twenty grains to four ounces of distilled water, tepid, being careful to drain off every drop of it before withdrawing the syringe; patient being on back, with legs flexed upwards, when this

operation is being performed; and the instant an unpleasant symptom arises, withdraw. It is undoubtedly the most efficacious method of dealing with very intractable cases. It should not be resorted to but once in the month between the periods; and it does not often occur that it has to be repeated over a few times. A woman suffering from intra-uterine catarrh is very helpless, barren as a rock, and still possesses a condition of evolution, and will become fertile the moment the disease is removed. There is little good here in the use of pastiles, as they do not penetrate inwards. Daily bathing, flannel clothing, and the best of food, of the most nutritious kind; gentle exercise in open air; recumbent posture when not exercising. Avoid malt liquors and sexual intercourse.

HYSTERIA.

A peculiar nervous disease that attacks both sexes, but especially females between puberty and cessation of the menses. It consists in a peculiar, nervous hyperæmia, which occurs in paroxysms, and simulates other diseases.

Causes.—It is, or has been, caused by some irritation of the genito-urinary organs, as exciting the sexual organs to irritation by works of fiction, lascivious thoughts, luxurious living sedentary habits, causing congestion; heated rooms, tight lacing; undue excitement of sexual organs, masturbation. The sympathetic nerve that covers front of the uterus is often involved, so that depressing passions may be regarded as a cause; besides, it is a general symptom in all uterine diseases, and is thus caused. The patient commonly is of a nervo-sanguine temperment, with a weakened reflex centre, involving both cord and bulb; and there is, or has been, an irritation in or about the uterus, which is, or has been, transmitted to the seat of reflex action. It is a genuine nervous malady, of grave importance. It is not necessary for a cause that there should exist present irritation; it may have been twenty years ago, but it has left an indelible impression on the centres that is easily roused into action by the slightest nervous ruffle, or tire.

Symptoms.—The common characteristic symptoms are convulsive movements of the trunk and limbs; beating of the breasts with clenched hands; or tearing the hair or clothes; shrieks, screams, violent agitation; a feeling of suffocation, as if a ball was in the throat (globus hystericus); the attack probably ending in an outburst of crying, sobbing, or laughter, or hiccough. The patient may fall to the ground insensible and exhausted; soon recovering, tired, and crying. The urine is of a low specific gravity, 1010, or even less, and may be passed involuntarily during the excitement. The portion of the cord down to where the sympathetic emanates is chiefly weakened,

consequently we find organs supplied with spinal nerves from that part exhibiting or simulating disease, as loss of voice, cough, pleurisy, consumption, paralysis, suppression of urine, and affection of the lower parts. Passive paralysis may take place; even increased sensibility of the parts supplied with special spinal nerves, as tenderness of uterus, ovaries, and even loss of sensibility may take place. The appetite is generally diminished; still it may be decreased, or even depraved, the most extraordinary substances being craved and eaten.

In some cases the expression of the countenance is peculiar; fulness of the upper lips; drooping of the upper eyelids. Abrupt in manner. The menstrual flow usually irregular, and there is generally leucorrhœa, or some uterine trouble. Symptoms are not always feigned; they may be exaggerated, but there is a real morbid condition at the base, and that may be a nerve prostration, or nerve tire, from some old disease. A not uncommon form of hysteria is where they take to the bed. They are languid, cheerful, have good digestion, but lie in bed, and greatly appreciate the attention of kind, sympathizing friends. They are fully convinced that their disease is of the most serious character, and involves the spinal cord or womb. Menstruation may be normal, or there may be endometritis, with leucorrhœa, or some form of displacement, or perhaps coccydynia. Any defect must be rectified, and the case managed on the general treatment.

Many of the confirmed invalids scattered far and wide over the country, who have been to one doctor and then another, and subjected to all kinds of uterine medication, mechanical and otherwise, with no lasting improvement, and have become chronic sufferers, a burden to themselves and families, have had originally uterine mischief; for we cannot minimize the local irritation on the general health, but the cases have drifted from their original condition. The pain, the backache, the leucorrhœa, the uterine partial death, the difficulty in locomotion, the disordered menstruation, which are the usual attendants, have ended in a general disturbance of all the bodily functions. The nervous system is profoundly affected, the blood impoverished, and the general nutrition at the lowest ebb.

After the disease has become confirmed, or chronic, there are a few prominent symptoms that are well marked. One of the most common is wasting of the fatty tissues of the body, combined with anæmia, loss of appetite. Associated with this we often find chloral, morphia, or stimulants resorted to; exercise is abandoned, and the patient becomes confined to the house or bed. Her vitality is at a low point; her emotional or hysterical condition craves sympathy, and the whole household becomes victims of her morbid selfishness.

Treatment.—During the fit, or paroxysm, loosen dress and corset, prevent injury, and have a free draught of fresh air. If she can swallow, teaspoonful doses of either the fluid extract of sumbul, or the ammoniated tincture of valerian, at intervals. If insensibility continues, cold water douche to head, and enemata of gum Arabic water and turpentine, and the application of ice, or cups, or heat to cervical portion of spine. Between the attacks the treatment should consist of a general alterative and tonic course of remedies, with daily shower and hip-baths; vaginal injections, and attention to the bowels. If these means fail, and the patient has the necessary funds, the following treatment should be resorted to in addition: The patient to be isolated, or removed from the unwholesome moral atmosphere of sympathizing friends; her vitality renewed by perfect seclusion and rest; by a peripheral stimulation of the entire body by friction, shampooing, kneading, with a vital nurse, and by excessive feeding. This is astonishingly successful if carried properly out. We shall enumerate the points in detail:

(1.) *Seclusion and Rest.*—Separate the patient from her moral and physical surroundings, which have become part of her sickness, and there is a beneficial change; then absolute rest in bed, patient not to be permitted to rise only for the purpose of passing her evacuations, and is neither allowed to read, sew, or even feed herself, for several weeks, and then to get round gradually.

(2.) *Manipulation.*—Begin with half an hour, and increase to one hour and a half, night and morning, a system of friction, shampooing, manipulation, or kneading, the muscles of the entire body, sponging off the part operated on with a tepid alkaline wash. After the patient has rested about two hours, follow up with electricity, the interrupted current, for three-quarters of an hour. The poles, armed with wet sponges, are to be placed on each muscle of the body, about four inches apart, and moved slowly until the muscles contract. Begin at foot and go up, and go over every muscle on the superficial part of the body. It may be painful and disagreeable, but it is of unquestionable utility. The nurse can be easily instructed, so as to do it systematically.

As to the diet, starve her the first ten days, by only feeding on milk in small quantities; and as soon as the natural appetite is restored under this passive muscular exercise of a good number of hours daily, then nourish freely with brain food, as animal diet, game, chicken, boiled fish, oatmeal porridge, cream, eggs. If such a process as the above is carried out for eight or ten weeks, with rigid isolation, there is little need of any drugs, for all uterine trouble rapidly disappears. The principal of manipulation for so long a period, and so varied

daily, carried vigorously out by a trained, healthy, or very vital nurse, soon imparts to the nervous system of the patient the vital elements that are deficient in brain, cord, and bulb. The treatment involves hard work, is very troublesome, and requires care and patience; but as it is effective, nothing should debar us in resorting to it.

UTERINE HÆMORRHAGE.

This means hæmorrhage from the uterus at any other than the menstrual periods. This may arise from various states; it may be a symptom of inflammation and congestion; of endometritis, of ovarian disease; of polypus in the uterus, or other tumors, or cancerous infiltration.

It is often the precursor of miscarriage or labor. Occurring during pregnancy, it is suggestive of a partial detachment of the placenta, or of what is called placenta prævia, that is located over the mouth of uterus.

After labor it may be due to inertia of the uterus, the organ being tired out; to the presence of shreds of membranes, pieces of placenta, or clots.

Intra-uterine coagula, both in the menstrual and puerperal state, are common causes. Puerperal coagula differ from menstrual coagula essentially in the time of their occurrence. Menstrual coagula may occur at any time during the child-bearing period of life, remote from childbirth or abortion. Puerperal coagula occur only in the period called that of the puerperal state, which is limited to abortion, or childbirth, which is covered by a period of one month or six weeks after delivery. The retention of a coagulum, or portion of the placenta, is a common cause of hæmorrhage, and there is a constant risk of bleeding so long as a particle remains. Relaxation or inertia is the common cause. Fibrinous polypi are very productive of it.

Treatment (see *Menorrhagia*).—In cases of pure relaxation and dilation of the uterus, sulphate of quinine in mineral acids, in alternation with tincture of black snakeroot; and if these fail, wine of ergot should be cautiously administered; the washing out of the vagina, if there is fetor, with tepid water and permanganate; and if all fail, insert the sponge plug, as already suggested. The use of hot water for syringing the vagina has a much better action than cold in causing a renewal of life, and a regaining of lost contractility.

TUMORS OF THE UTERUS.

Of all organic diseases of the uterus that manifest themselves during the period of sexual vigor, non-malignant tumors are the most common; and there can be little doubt but that

the causes that tend to produce chronic inflammation are the same as cause those growths. They may manifest themselves in various ways. There may be a general hypertrophy of the muscular fibres, with a deposit of fibrin, causing a general increase of size; and the condition may progress on and on until fatty degeneration is reached—a condition of non-contractility which gives rise to hæmorrhage.

(1.) **Fibroid Tumors.**—A condition in which we have an excess of fibrous tissue. It may be simply an outgrowth of the ordinary fibrous tissue of the uterus; if not an outcropping, a deposit. It may be in the form of a nodule, or tumor, developed in any part of the uterus; or it may be effused just on the surface, below the peritoneal coat; or it may be interstitial, or intra-mural, that is, imbedded in the uterine walls; or it may be submucous, or intra-uterine, when in the cavity of the womb.

An excess of fibrous tissue elements in the blood, and local irritation, are the causes.

Sypmtoms.—Very frequently neither important nor well marked, as there is neither cachexia nor pain, in front or back, or shooting through. When of sufficient size, it encroaches on the pelvic viscera, and can be detected over abdomen, or per vaginum, or rectum, or by sound. Even if small, it is likely to give rise to frequent hæmorrhages, difficulty in passing urine, or in retaining it; obstruction of the bowels, or constipation, hæmorrhoids. If it is intra-uterine, the hæmorrhage is likely to be severe, and to be accompanied with bearing-down pains. The sharp, lancinating pain of cancer is entirely absent, but there is, nevertheless, a sort of dull, aching, or throbbing pain, with a sense of weight and bearing-down, corresponding to the size of the deposit, or growth. Enlargement and tenderness of breasts, and they often exude serum from the nipple. If unable to detect, evacuate bowels thoroughly with oil, and make a careful abdominal manipulation and vaginal examination.

Treatment.—The first idea is to procure absorption. For this purpose the general health of patient must be seen to; the best of diet; the appetite increased and digestion facilitated with pepsin; bowels regulated with cascara; skin stimulated by acid and alkaline baths, with palpation, shampooing, daily. Then place patient on ozonized phytolacca, glycerite of ozone, ozone-water, iodide of potass, iodide of lime; and locally, apply ozonized clay uninterruptedly above the pubes, a little larger than the uterus; confine it, or keep it, in close apposition, by a belt or bandage, like a T, pinning the fold up in front tight. If the clay causes no redness, let it be on all the time, every morning moistening with water, so as to render it soft or poltaceous, or applying fresh clay. As a rule, the first application

of the clay should last four or five days. The best plan, however, is to be guided by the appearance of skin; never cause redness.

Two of the above remedies should be given the same week; one before, and other two hours after, eating. To hasten the process of absorption, pastiles and suppositories of iodide of potassa should be used every night. All remedies but clay to be discontinued during menstruation. Hæmorrhage and other symptoms to be treated on general principles.

(2.) Polypus of Uterus.—A pear-shaped excrescence attached, and growing from the mucous membrane of the uterus. It may be in the cavity, on the neck, os, or in vagina, or other part, by a pedicle, or root, or stem.

There are three varieties: (1.) Gelatinous, or mucous. (2.) Fibroid, pale white, covered with mucous membrane. (3.) Fibroid, fleshy, or placental. The predisposing cause is tuberculæ; the exciting cause, irritations, as abortions, masturbations.

Symptoms.—Either profuse menstruation, or irregular attacks of uterine hæmorrhage, or a dribbling all the time, or even excessive flooding; leucorrhœa very profuse. If polypus is large, there may be irritation of the bladder and rectum by pressure. The same condition is likely to give rise to bearing-down or expulsive pains, coming on by spells, or worse after exercise. The continual loss of blood is a heavy drain, and gives rise to debility, loss of flesh in proportion to the amount of loss. The polypus can easily be detected in the uterus by the sound, or, if on neck, os, or vagina, by finger and speculum.

Treatment.—If the polypus is in vagina, or on the neck, or os, any of the following methods of treatment can be resorted to: It can be *excised*, and bleeding arrested with a sponge, proper size, saturated with perchloride of iron; it can be *ligated*, and allowed to slough off; *torsion* can be used, that is, it can be turned a little every day, thus impeding its circulation, strangulating it, and allowing it to slough off; or the chain of the *écraseur* can be applied round it, and crushed; or, if it can be brought into a speculum handy, the ozonized chloride of chromium can be applied, and cause its instant death without a particle of pain.

If in the cavity of uterus, the os uteri must be dilated, and it may then either be snipped off or ligated.

In order to prevent a recurrence of the disease, the patient should be placed upon alteratives and tonics, and the treatment for tuberculosis.

Other symptoms to be attended to on general principles.

(3.) Cysts of Uterus.—Cysts, or closed sacs, resembling hydatid cysts, are often developed in the substance of the uterus or beneath internal mucous lining, or under external serous

covering. Sometimes one part of the uterine walls is invaded with cysts, or small bladders, while another part is infiltrated with fibrous tissue, or the ordinary fibroid tumor. These cysts give rise to trouble and inconvenience when they attain any size, such as leucorrhœa and hæmorrhage. If within reach, they may be punctured. They, like the others, are unaccompanied with pain; not infrequent give rise to uneasiness. The best treatment is a general alterative and tonic course.

In order to avoid those three common forms of uterine disease, there should be a rigid avoidance of irritation of the uterus, either by tight lacing, wearing sponges or pessaries, masturbation, abortions, irritating caustics of doctors, especially nitrate of silver; even certain occupations, as the sewing machine, should be guarded against, or other forms that aid in the production of congestion.

CANCER OF THE UTERUS.

Cancer of the womb is becoming a frequent and common form of cancer. The cancerous deposit usually begins in the neck and proceeds up, and then involves the body. It is generally of the acute, or medullary form; it may begin as an epithelial or scirrhus, but this seldom lasts long. Uterine cancer most common about change of life.

Causes.—The predisposing cause is the diathesis; the exciting cause is chronic inflammation, relaxation, that enables this germ, when once in the blood, to aggregate by affinity in a weakened part, and grow. The germ once deposited, uses up in its own nutrition the structure of the part, causes atrophy, then hypertrophy, and has a very wonderful faculty of growth. All the causes, then, of chronic inflammation are to be taken as the exciting cause of carcinoma.

Symptoms.—Cancerous cachexia; dingy, sallow hue of countenance; pearly conjunctiva; gnawing and sinking at pit of stomach; skin dry; stools clay-colored; cancer cells in urine; languor and debility extreme; pain anterior and posterior over uterus; occasional abundant watery discharge, of a dirty pale-green color, always offensive. After a while, sudden attacks of hæmorrhage. The pain increases; at first it is simply a dart, like a knife, from front to back, occurring usually at night, or when patient was fatigued; it now becomes almost continuous, and causes great distress. The stomach loathes and rejects food; there is nausea, vomiting, flatulence, and bowels become irregular. The mental depression is extreme, the debility increases day by day, and the body wastes rapidly. The discharge from vagina is intensely foetid, the hæmorrhages become almost constant, the cancerous cachexia is most decided. The uterus becomes so filled up with diseased-germs that it is quite im-

movable in the pelvic cavity. The lips of the mouth of the uterus become indurated; nodulated at first, and then great excavations take place in them, and the cancerous mass can be felt protruding through. Vagina, bladder, and rectum become all involved, and there are perforations, and openings, and counter-openings between those various organs. Death usually takes place from exhaustion.

Treatment.—Place patient at the earliest discovery of the disease upon the general constitutional treatment for cancer, and as it is highly contagious and infectious, an avoidance of sexual intercourse, and a resort three or four times a day to vaginal injections, as lime-water and tincture of iodine; solutions of permanganate of potass, or chloride of zinc.

Relieve Pain with henbane, camphor and lupulin, opium and henbane, morphia, chloroform and Indian hemp; hypodermic injections of morphia; use also pastiles and suppositories of opium and belladonna.

After attending to those preliminaries, see to the stomach, bowels, kidneys, skin and diet; coax an appetite with tonics and the dantiest kind of food; follow with pepsin; give cascara to regulate bowels, and attend to skin and kidneys with diuretic drinks and acid baths. For hæmorrhage, first, gallic acid; turpentine and sulphuric acid; alum and sulphuric acid. After thus watching and meeting indications very promptly, the next point to decide, is, can the germ colony be destroyed by local means? If not too extensive, that is, if it does not involve the veins and arteries of the body of the uterus, the ozonized chloride of chromium paste could be applied through Racemier's speculum, for an hour, and cause painless destruction of the mass. If too large to be admitted into this kind of speculum, no other should be used. Glass is to be preferred to metal, as the ozone is highly corrosive to all metallic bodies. If the chloride of chromium cannot be applied, then the only other chance for the patient is the application of the ozonized clay over the pubes.

If it is only possible to bring the ozonized chloride of chromium in contact with it its annihilation is certain, and the case will recover, for the entire mass of diseased germs will be thrown off in a few days. The other treatment, that is, the vaginal injections and ozonized remedies internally, must be pushed with great vigor. In this way, this hitherto hopeless form of uterine cancer can be managed most successfully.

DISPLACEMENT OF THE UTERUS.

The uterus may be displaced in various ways. The most common causes are debility, relaxation, want of tone; dilatation of vagina, combined with tight lacing; lifting, jumping,

strains, falls, constipation, indefinite retention of urine, congestion, tumors, weight increased.

(1.) Prolapsus and Procidentia.—These two terms are employed to designate a descent or falling of the womb, as it exists in two different grades. Prolapsus means that condition in which the uterus falls below its natural level in the pelvic cavity. The term Procidentia is used when the uterus slides down and protrudes beyond the vulva. It is simply prolapse, or falling, extended in degree, both conditions being the same.

Symptoms.—Leucorrhœa, pain in the back, sense of weight or fulness about pelvis, bearing-down pains. Usually no impediment to menstruation, or conception, as uterus is generally replaced when in the recumbent posture in bed; irritation of bladder and rectum. In prolapsus, uterus found depressed, resting on upper floor of perinæum; in procidentia, a round or pear-shaped tumor, with os uteri visible at its centre, is seen projecting beyond the vulva. Labia of os uteri, from exposure to air and clothing, often becomes excoriated; vaginal walls dry, harsh, cracked or ulcerated.

Treatment.—Remove all causes, as tight lacing, cough, constipation, congestion. Regulate bowels with cascara, so that stools will be easy and soft; place patient upon the very best of food and tonics, such as Peruvian bark and port wine, the viburnum compound, cinchona and mineral acids, glycerite of ozone, infusion of witchhazel, or fennel seed, and if menstruation is scanty, compound betin pill. First thing in the morning, wash out vagina with one of the following solutions or washes, using a bed-pan, so as to maintain the recumbent posture: Permanganate potass, lime-water; carbolic acid, and tincture of iodine; borax. Rest a few minutes, then inject either a solution of alum, or alum and sulphuric acid, or sulphate of zinc, or fluid extract of matico, or oak bark, or infusion of witchhazel. Before getting up, have a fine silk sponge cut in the shape of a small pear, with a silk cord fastened to it, which saturate with the last wash used, and then insert up the vagina, the broad base upwards and point or pedicle downwards, from which the cord hangs. Then patient to get up. The size of this pear-shaped sponge will depend on the capacity of the vagina; it must be large enough to prop the uterus up in its proper place. This process of injection is to be repeated at noon and at bed-time. The patient can easily draw the sponge out herself, which should be thoroughly washed every time. After the night injection the sponge need not be inserted, but should be laid to steep in borax-water. This is to be repeated every day, changing remedies every three or four days, and keeping the patient lying down as much as possible. Cold water hip-bath, morning and night, to give tone to the pelvis

and its organs, especially the broad ligament. All treatment, except the tonics, to be discontinued during menstruation.

If the case is an aggravated one of procidentia, the uterus must be returned, and the same plan pursued.

Now, if this fails in eight or ten weeks, which is seldom the case if patient is faithful, and the injections cold and of proper strength, return the uterus, and resort to the radical operation of painting seven vertical streaks on the vaginal walls, as previously described under *Vaginal Prolapsus*. This is better than humbugging with belts, supporters, plates, pessaries, rings, and other trash that irretrievably ruins a woman. Any lady, with a very little instruction, may cure herself in a short space of time. It will aid matters much if she is freed from all domestic care or toil or worry, so that when about she can either walk gently, or ride, for the improvement of general health.

There is still another plan of radically curing, and that is, by injecting only one injection, of nearly double strength, of the ozone et chlorine injection. This will necessitate a confinement to bed, as in the case of the vertical streaks with nitric acid, but is not near so positive.

Still another method is suggested, in old chronic cases, with thickening of the neck. The antiseptic injections are used as above, but the sponge is well cleansed, and then every time it is inserted is saturated with the following mixture: Glycerine, eighty ounces; alum, ten ounces; carbolic acid, one and one-quarter ounce. This has a most beneficial effect in stimulating the capillary circulation of the uterus and pelvis, and acts as a depleting agent, and removes the induration, in so much as it drains the blood of its water by its affinity for water. In short, if there is any thickening, this kind of medicated sponge effectually obviates it, and keeps up a drain on the parts, and reduces them to their natural size and healthy state; and there is usually a rapid appearance of improvement in the patient. It is only adapted to cases with considerable thickening.

(2.) Retroflexion and Antelexion.—Retroflexion consists of a bending backwards of the uterus at the part where the neck joins the body, so that the fundus is found between cervix and rectum, the mouth of the uterus being in its normal position. The uterus becomes shaped like a retort. In antelexion we have precisely the same condition of things, only reversed, the fundus resting on bladder.

Symptoms.—If the displacement is not great, there may be few symptoms present. As a rule, it is more common in large, flabby women whose pelvic capacity is great. If the angle of flexion is acute there is considerable suffering; the uterine ligaments are unduly stretched, circulation through uterus

impeded, and fundus immovably fixed, on either the rectum or bladder.

There is usually great languor, lassitude, debility, dull, wearing backache; tenderness about groin and inside of thighs; sense of fulness in rectum or bladder; pain from sexual intercourse; fecundation prevented; severe dysmenorrhœa; nausea, gastric irritation, loss of appetite. Mental depression and the manifestation of reflex irritation or exhaustion, as in hysteria. The displacement is readily made out by uterine sound.

Treatment.—Replacement is to be effected by a thorough evacuation of the bowels and bladder; pushing fundus upwards, with the aid of a No. 6 catheter, and strapping catheter to the thigh, meantime injecting vagina with ozone et chlorine, once, and following with infusion of golden seal and borax, or witchhazel and bayberry, keeping bowels very soluble.

(3.) **Retroversion and Anteversion.**—In retroversion the uterus lies almost transversely in uterine cavity, with fundus towards hollow of the sacrum and os uteri under pelvic arch. In anteversion the fundus lies on the bladder and os uteri in the cavity of the sacrum.

Symptoms.—General symptoms of nervous depression; backache, bearing-down, leucorrhœa. Menstruation not so much interfered with but that impregnation may take place. There is considerable aching pain in thighs and hips; there may be some difficulty with rectum or bladder. If it occur during pregnancy likely to be retention of urine.

Treatment.—Replacement with the catheter; a general tonic and alterative course of remedies, such as is laid down under *Simple Displacement*, with cold vaginal injections thrice daily, and pastiles of tannin and opium at night; hip-baths; avoid all causes, as coughing, lifting, jumping, straining.

(4.) **Inversion of the Uterus.**—This is a condition in which the uterus actually turns inside out. It usually happens in hurried labor in large, flabby women with a straight sacrum. Cases are recorded where it has occurred after the expulsion of a polypus. The fundus of the uterus descends through the os uteri; the internal covering of the womb becomes the external covering of tumor.

Symptoms.—Severe nervous shock; great depression and faintness, with bearing-down pains; nausea and vomiting, with, perhaps, hæmorrhage. Sometimes the shock is fatal if labor has been long and painful. In some cases, when not detected at the time of its occurrence, patient may have gone on for months or years, suffering from pain in loins, pelvis, poor health, anæmia and hæmorrhage.

Treatment.—Place patient at once under chloroform; then on her back, knees drawn up. Then place forefinger of right

hand in the left corner of the uterus, pushing it gently but perseveringly up, and as the fundus ascends through the neck grasp the uterine tumor through the abdominal walls with the left. In this way reduction is easily effected. As soon as the inversion is reduced, if the uterus does not contract sufficiently try cold or heat on abdominal walls, and if this is not sufficient, electricity by Faradization should be used, as well as the sponge plug, saturated with perchloride of iron. In chronic cases an effort at reduction should be made.

(5.) Sub-Involution of the Uterus.—Very liable to be caused by intra-uterine catarrh, or congestion, which has left this legacy or weakness of the fundus.

Symptoms.—Are very variable; all the symptoms of hysteria, with faintings, often nausea and vomiting, bearing-down, backache, weariness, languor, etc. Uterus detected large and flabby, with fundus depressed.

Treatment.—General constitutional treatment for uterine catarrh should be resorted to, and twice, in the middle of the month, between the menstrual periods, the following should be done at intervals of a week apart: Insert, if possible, a No. 12 silver catheter into the cavity of the uterus, so as to dilate the neck. Then, having previously prepared a piece of whalebone the size and shape of a No. 2 catheter, wrap fine cotton-wool around about an inch and a half of its point, bound lightly down with a thread round and round, so that it is no thicker than what is already through the neck; then saturate the cotton on the end of the whalebone with a solution of equal parts of alcohol, iodine, and iodide of potass; withdraw the catheter, and quickly insert the whalebone so prepared and medicated, up to the fundus of the uterus, moving it gently around; then remove, dip it in the solution, and re-insert a second time. In this way, a large, flabby uterus, sub-involutcd, is, in the course of a few applications, brought back to its original size, and the difficulty completely overcome. Seldom more than three or four applications are necessary. It is simple, and there is no danger of setting up any inflammation. If there is any difficulty in introducing the large size catheter, then dilate the neck sufficiently for half an hour before the application with either the metallic or rubber dilator.

DISEASE OF THE OVARIES.

Ovarian disease has recently become most common, owing to the numerous morbid conditions of the uterus, with the erroneous and irritating drugs used, the greater frequency of induced abortion, the extreme prevalence of the venereal disease; that very deleterious occupation to women, the sewing machine. Before its introduction disease of the right ovary was almost

unknown; now it is the most common; if not giving rise to direct inflammation it produces ovarian dysmenorrhœa, or leucorrhœa.

(1.) **Acute Inflammation of Ovary.**—A partial death of the ovary may arise from a long, tedious, harassing labor; from the use of instruments in producing abortion; from the injecting of fluids into uterine cavity; from absorption of lochial products, or other debris; from the use of caustic to the neck of uterus; from dilatation of the os uteri; from violence, falls, blows; also from sudden suppression of the menses from cold, or wet, or shock; from gonorrhœa, excessive sexual intercourse, or sexual intercourse within six weeks after miscarriage; masturbation. Usually left side, unless due to movement of right leg.

Symptoms.—There is the shock, with localized pain over the region of the ovary, aggravated by pressure or movement, with aching or numbness, or pain in the inside of the thighs, with repeated rigors and a fever. The features are anxious, tongue coated, nausea, vomiting, pulse frequent and wiry; great restlessness and loathing of food; bowels constipated; urine very scanty, scalding, and high-colored; patient lies on back with knees drawn up. In some cases the pain in the ovary is intense, causing a bearing-down like labor pains; in other cases it is of a dull, aching character, with paroxysms of occasional sharp, lancinating attacks. Besides the intense pain in the ovary or gland, there is quite considerable pain in the groin and thigh corresponding to affected ovary. Bladder is always irritable. The peritoneal covering always sympathizes and often becomes involved. Passage from bowels gives great distress, the hardened feces passing along in the distended bowel presses hard on the ovary. Besides, the ovary can always be detected excessively tender, swollen, or puffed up. If the case is a severe one, or treatment inefficient or shilly-shally, it may terminate in peritonitis, or in the breaking down of the effused lymph in the ovary, and suppuration. If the latter, there will be rigors; the pulse will become feeble; there will be great nausea and vomiting, tongue will become red and glazed; there is weight and throbbing in the ovary. In favorable cases abscess will burst into vagina or rectum; in unfavorable cases, into peritoneal cavity, giving rise to peritonitis and death. When openings or sinuses form, the case becomes very tedious, opening and closing again and again.

Treatment.—The moment case is made out, apply turpentine over affected ovary; as soon as redness is bright, hot poultices of linseed meal; as soon as redness becomes other, a reapplication of the turpentine, or else croton oil, and follow with hot poultices and opium. At the same time open the bowels with copious enemata of linseed tea and laudanum,

and place patient upon opium or morphia and gelsemium, in doses often and repeated until there is absolute relief from pain. If this does not succeed quickly, introduce pastiles into vagina and suppositories of belladonna and opium into rectum. If skin does not become moist and be considerably better in a few hours, substitute aconite for gelsemium, and with it give jaborandi. In addition to the poultices and stimulants over ovary, cushions or small pillows of hops, baked in an oven, hot over pubes, vulva, hips. If in this manner inflammatory symptoms can be held in abeyance for four or five days by establishing a renewal of life in the ovary, then begin with the iodide of potass with bicarbonate very cautiously; by and by iodide of lime, and later on ozonized glycerine. The irritating plaster can be substituted for the more active agents, spreading it fresh every morning and applying. The diet all through the attack should be meagre, and confined to milk and lime-water, and beef-tea; bowels opened daily with warm enemata of linseed tea.

If there are elements of venereal poison in the case, tepid injections of solutions of borax, or permanganate, should be used thrice daily.

As the progress of these cases is essentially slow, great caution is to be observed in resuming exercise, diet, and ordinary mode of life. Even a tonic course, so essential for recovery, is best delayed till all pain has ceased. Usual uterine tonics.

(2.) Chronic Inflammation of the Ovary.—One of the most common affections of modern ladies, during the period of sexual vigor. Essentially a very chronic disease. It consists in a low grade of either ovary, or both.

Causes.—Suppression of the menses by cold, damp, fright or passion. Masturbation, use of sewing-machine; violence, exercise too great, as dancing; tight lacing; sexual incompatibility; excessive sexual intercourse; producing abortions with sounds, whalebone, knitting-needles; retention of puerperal products, as clots and pieces of placenta; the use of sponges, pessaries, rings, uterine supporters; sexual congress within six weeks after confinement; use of caustics; gonorrhœa; fictitious literature; rheumatism and gout, etc.

Symptoms.—There is general languor and debility, an undefined sense of weariness; a nerve-tire, with a pale, dry, white, doughy skin, torpid bowels and irritable bladder, with scanty urine, and irritation of stomach, nausea, indigestion, flatulence, with decided hysteria. There is a dull, continuous pain over the affected ovary, aggravated by pressure, movement. In some cases neuralgic shooting pain in addition; besides this steady pain in ovary, there is also tenderness in the groin, in the sacral region and in the upper part of the thighs. There is trou-

ble of some kind with the menses, usually scanty and painful. Pain in sexual intercourse; likely to be some puffing or swelling of ovaries; also tumefaction and tenderness of one or both breasts. Nymphomania is a common symptom, and it may even merge into a more decided form of insanity, or peculiar strangeness of conduct. Often in defecation, if stools are hard, pain is great. In all cases the ovary can be detected sensitive or tender, either over ovary, or by vagina or rectum.

Treatment.—For three weeks during every month the treatment can be carried on with vigor, but during menstrual period it must be entirely suspended, with the exception of local stimulation over affected ovary. The points to observe are—ascertain the causes, and remove them by daily bathing, hip-baths; regular evacuation of bowels; gentle walking exercise; warm flannel clothing; excite appetite and give best of food, followed by pepsin; solid diet of animal food, white-fish, oatmeal porridge and cream, eggs, etc.; avoid slops. Then general course of vegetable alteratives and tonics, such as compound syrup phytolacca and iodide of potass. Iodide and bromide of potass in the viburnum compound, or in stillingia compound; iodide of lime; port wine and Peruvian bark; sulphate quinine and aromatic sulphuric acid; glycerite of ozone, ozone-water. Besides these, the following acro-narcotics have a remarkable sedative action on the ovaries: Tincture digitalis, tincture belladonna, tincture cimicifuga.

Those drugs have an effect to soothe and even prevent the evolution of the ova if long continued. Pastiles and suppositories every night at bed time of belladonna and opium, if necessary. The above can be so regulated as the tonic can be given before meals, alteratives after, and the other remedies between. The irritating plaster to be kept continuously applied, keeping an open sore about the size of a hen's egg. It will be necessary to keep up this alterative and tonic treatment for some months, and while so taking treatment the vagina should be washed out at least twice a day with tepid water and borax, or an infusion of golden seal and borax or sage tea.

(3.) **Ovarian Tumors.**—Those are an invariable result of chronic inflammation of the ovary when that condition is not seen to promptly and managed properly. Irritation is the cause of those growths. This irritation may spend itself upon the serous membrane and give rise to dropsy of the ovary, or on the fibrous tissue, or upon the sebaceous glands, or other tissues of the ovary, thus giving rise to different kinds of effusions or tumors. Ovarian dropsy is the most common of cystic disease of the ovary. There are three forms met with: the simple cyst or bladder, filled with a fluid; then there are the proliferous cysts, in which there are a number; and the

dermoid cysts, the lining membrane of which is capable of secreting hair, nails, teeth, sebaceous matter, or any substance of the body.

Causes.—It is unnecessary to recapitulate the causes, suffice it to say that they are to be embraced under all those of chronic inflammation of the womb and ovaries, acute and chronic—which see—and placed under one term, *irritation*.

Symptoms.—Most cases, if carefully scrutinized, will exhibit well-marked symptoms of chronic inflammation of ovary—still the irritation seems to be even a little less, so the uneasiness or pain of that condition is often not well marked, and may, if the patient is of a cheerful, sanguine temperament, escape detection until the abdomen begins to enlarge. In other cases the pain in the ovary is well marked, and when the ovary fills up it gives rise not only to an appreciable tumor in the affected side, but gives rise to some irritation of bladder and rectum; a sense of weight and oppression in the abdomen; pain and numbness down the thigh of the affected side. Besides, there is the usual lassitude, weariness, backache, constipation, irritable bladder. Menstruation at first may be regular, but scanty or abundant.

After tumor has attained some considerable size, the symptoms become aggravated; there is greater pain and tenderness, as well as distension of the abdomen. Menstruation now is interfered with greatly, usually it is disordered, frequent or suppressed. There is loss of appetite, indigestion, constipation, loss of flesh; frequent micturition; urine scanty, often suppressed. Strength diminishes; emaciation becomes greater; hectic spells; no sleep, sense of smothering, cannot go to bed, sits up. Meantime the abdomen increases in size, becomes enormously enlarged. The swelling is one-sided, it may lay over to the other side in the recumbent posture; the pain is only in front, if it is simple, but if it contains cancer germs the pain will radiate from the front to the back; if it contains a fluid a sense of fluctuation can be detected even if the cysts are like a honey-comb, whereas if it contains any solid constituent of the body, hair, nails, bone, teeth, or cheesy matter, it is solid, dull on percussion. As the tumor grows it fills up the abdomen and may cause dropsy of the abdomen by unravelling its peritoneal fibres; oedema of the legs and thighs. As it progresses patient's movements become impeded from the bulk of the tumor, suffering is augmented, all the symptoms grow worse, the nights are wretched, the difficulty of breathing is very great; the swelling or dropsy becomes considerable, often suppression of urine and feces; uræmic poisoning or fatal prostration is very apt to take place.

Treatment.—When tumor is smaller than the two closed fists of the patient an effort at absorption is to be tried, which,

with our new remedies, is often successful; and if it fails it will be no barrier to ovariectomy. Every point must be well guarded and seen to, as the best of food; regular evacuations; good, comfortable sleep; flannel clothing; a perfect alleviation of all pain, and the best of hopes encouraged for a cure. Then selecting a tonic and alterative from the list for a week, then change, and so on for another week. *Alteratives*: ozonized phytolacca compound, iodide of potass in compound syrup of stillingia, iodide of lime; *tonics*: cinchona compound and mineral acids, sulphate quinine, glycerite of ozone or glycerite of kephaline. In addition both pastiles and suppositories of iodide potass, belladonna, conium and iodide of lime.

Locally, the ozonized clay over the entire tumor, bound on with a firm roller and T bandage. If the clay cause no redness, it can be put on fresh every morning, but if there is the least redness, it can be taken off and broke up fine and water added to it and reapplied for four or five days. The action of this clay on this class of growths is most extraordinary—causes their thorough, positive dissolution and disintegration. As this process goes on the bowels must be kept open with cascara and kidneys stimulated with cream of tartar lemonade.

Cover entire tumor with the clay, and no more, and as this process goes on push diet, alteratives and tonics.

All other methods of treatment are simply a loss of valuable time, such as tapping, aspirating. If the absorption plan with the clay, and other drugs fail, then there is only one thing left and that is ovariectomy. In larger tumors than those mentioned, the clay will reduce their bulk, and in some rare cases cause their disappearance; but in very large ones we cannot speak with the same precision as we do of those of a smaller class.

In ovariectomy, that is in making an abdominal section in the median line of the abdomen, ligating the pedicle of the tumor, then dividing it, removing tumor and returning the ligated stump into the abdomen, stitching up abdomen, etc., etc., and treating for peritonitis, do not wait too long, until there is no recuperative power left in the patient.

(4.) Ovarian Displacement.—One on both ovaries are occasionally forced out of position by some uterine, or other tumor; or an ovary may descend into the recto-uterine pouch of peritonæum, or escape from pelvis, forming a true hernia of this gland. Displacements of the ovary by uterine tumors will present the symptoms due to that class of tumors; suffering often ceases if tumor increase in size and pass out of the pelvic cavity; the other class may be congenital, or may happen accidentally after puberty. In rare cases the ovaries have formed the contents of an inguinal, crural or umbilical hernia.

(5.) **Dropsy of Fallopian Tube.**—Very rare. Fimbriated extremity of tube, together with uterine orifice, gets completely obliterated in consequence of chronic inflammation; the portion of canal between the openings becoming the seat of an accumulation of pus or serous fluid. The cyst can be punctured or aspirated through the roof of vagina.

LEUCORRHŒA.

Under the head *Chronic Vaginitis* we spoke of leucorrhœa, but it will be seen that it is an essential symptom of all diseases of both vagina, uterus and ovaries.

Causes.—So that the causes of leucorrhœa, irrespective of debility of the vaginal walls, are, acute and chronic inflammation of the uterus, hysteria, cancer, displacements of all kinds, tumors, uterine catarrh, acute and chronic inflammation of ovary.

Treatment.—So that leucorrhœa is often troublesome to get rid of, so long as the cause on which it depends exists. In all cases of leucorrhœa, whatever the cause may be, the discharge, whether it be mucous or muco-purulent, serous or bloody, or pure pus, is loaded with diseased germs, amœba, bacteria, sarcinæ, oidium albicans, yeast-germs, cancer, tuberculæ, etc., hence the utility and efficiency of thoroughly syringing out the vagina thrice daily with antiseptic solutions, as borax in infusion of golden seal, solution of boroglyceride, chlorate or permanganate of potass, lime-water, tincture of iodine, and in all cases keeping patient upon tonics and good diet. Whatever the cause may be, remove it; this facilitates a cure. Astringent washes are not of real merit as long as an organic disease exists.

PELVIC HÆMATOCELE.

An effusion of blood into peritoneal pouch, between uterus and rectum; or, into sub-peritoneal tissue, behind and around the uterus.

Causes.—Abortions, lingering labor, violence of some kind; ovarian pregnancy, blows, kicks, falls.

Symptoms.—These are very variable. If the loss is excessive, there is the great nervous shock and exhaustion from profuse hæmorrhage. Usually acute pain in the lower part of abdomen; shivering, coldness of extremities; vomiting; increasing feebleness of circulation; ghastly appearance of face, and death in a short time.

If the loss of blood is not excessive, there is nausea, rigors and a fever, with violent abdominal pain; countenance very anxious, white and pinched. A frequent desire to empty bladder, but inability to do so; irritability of rectum; in some

cases the pelvic tumor may be felt through the vaginal walls. Danger of peritonitis, or of a recurrence of the hæmorrhage. With great care absorption may be hoped for. In all cases there is the greatest danger to life.

Treatment.—Perfect repose in recumbent posture. Opium in large doses, to relieve pain and prevent faintness and collapse. Try sulphuric acid, turpentine, and alcohol, or alum and sulphuric acid. Bladders filled with ice to lower part of abdomen. No getting up to micturate or defecate; draw water off. General principles to be observed.

INFLAMMATION OF THE CELLULAR TISSUE OF THE PELVIS.

Pelvic cellulitis is mostly met with in connection with some tubercular disease; it may be a result of blows, falls, or other violence; abortions, tedious labor, or some uterine or other disease.

Symptoms.—Local pain, throbbing, and tenderness, with painful swelling, usually appreciable at lower part of abdomen, or by vaginal examination. Simultaneously with the local pain, there is nausea and vomiting; great constitutional disturbance; rigors, and a fever, with some pain in the head, back, and aching pains in the limbs; difficult micturition and tenesmus. If case progresses to suppuration, the above symptoms increase in severity, with additional rigors, throbbing, and tenderness; neuralgic pain down the thighs, and if within reach, fluctuation can be detected. Pus channels may form in different directions, into bladder, vagina, rectum, colon, rarely into peritonæum, generally finding their way externally. Nature is most provident of herself in these cases, by the formation of those sinuses almost invariably reaching the surface.

Treatment.—Those cases require great tact and good judgment; the rectum and vagina should be injected daily with linseed-tea; hot poultices should be applied; fever controlled with aconite, opium, or morphia, to relieve pain. Belladonna and opium suppositories every night at bed-time. Quinine and aromatic sulphuric acid, and carbolic acid and tincture of iodine internally; the patient regularly sponged off. Most nutritious food, milk, raw eggs, beef-tea, juice of meat, and animal food as soon as the stomach can bear it. If abscess point anywhere, it can be opened with advantage. As soon as the pus has been thoroughly evacuated, alteratives and tonics.

The greatest possible care should be exercised during the stage of convalescence. *Rest* is an indispensable condition, together with well-regulated secretions; *tonics*, and the very best of blood-elaborating food.

CHANGE OF LIFE. .

According to the last census, there were two millions of women in the United States, between the ages of forty-five and fifty, undergoing the change of life; and this number is annually kept up by fresh recruits; so that we have, at all times, about that number. The importance of the period, the history of suffering endured, cannot be approximated; neither has its diseases been adequately investigated.

The terms, change of life, turn of life, critical period, etc., are understood to mean a period of life beginning with those irregularities which precede the last appearance of the menstrual flow, and ending with the resettlement of health on a new basis. This is usually divided into a premonitory period, the actual stoppage or cessation of the flow, and the adaptation of the system to the change. The first indication of failure of ovarian energy is irregularity; when the failure is complete, perfect cessation.

Although it is termed a critical period, it is not to be deemed fatal, if the patient's system is healthy. It is a gradual change, leading to better or worse; to complete recovery more frequently than to death.

The streams of life, instead of flowing on in a smooth, tranquil current from the cradle to the grave, are marked by rapids, or milestones, which are critical, metamorphic, or developing epochs. Seven, fourteen, twenty-one, are clearly and distinctly written on the first part of life; forty-two, forty-nine, and sixty-three, are less deeply cut, but are distinctly visible in the later period of life. Those periods are characterized by important changes, which give a peculiar aspect to the physiognomy of the human body, and impart a family likeness to the diseases of epochs justly deemed critical, in which one or several organs of the body undergo changes. The object of each critical change in our bodies is to insure the greatest amount of health for each subsequent period of life. This object, if the vital forces are of average strength, is effected quickly; but if there be debility or disease, then there is more or less disturbance, according to the degree or intensity of that state. The critical changes of dentition and puberty are frequently brought about without any disturbance or ill health; nevertheless, they are often followed by debility. At critical periods, the activity of important apparatus may be too powerful, and disturb other organs, or too feeble to react on others. When the energy of the preponderance-seeking organ is above or below par, health may be impaired. With regard to the influence of critical periods of life, first and second dentition influences both sexes alike, and in the same

way. Puberty is common to both; but the impulse given to the constitution of man, by the perfect development of the sexual apparatus, is, in general, fully effective, and all-sufficient to insure its permanent activity until extreme old age; whereas, in women the crisis is very liable to be delayed, or perverted; and even when puberty has been fully and effectively established, the health of woman is dependent on those oscillations of vital force, which render it most uncertain. The chemical activities of a woman cause her to mature early; the inertia of man's nature renders him slow, late in maturing. The same inherent qualities of sex give woman an early change; whereas, man's change is delayed (if not too early precocious) till a good old age, he being capable of begetting children to seventy or eighty; whereas, the moment a woman changes, fecundity ceases. It is true that children begot by very old men are of very feeble vitality. Although most women change at forty-five or forty-seven years of age, it does not follow that sexual appetite is extinct. Sexual congress may not be enjoyed by some, whereas others never have a warmth of feeling until the change of life takes place. The large proportion of women, on cessation taking place, become callous, indifferent, lose their sexual vivacity and vigor.

Menstruation, healthy or morbid, marriage, pregnancy, parturition, and lactation are critical eventualities in a woman's life, curing some complaints, giving greater activity to others; and when, after having lasted thirty years, the action of the reproductive organs is being withdrawn from the system, then there arises a series of beautifully adapted critical movements, the object of which is to endow a healthy woman with a greater degree of strength than that which she had previously enjoyed. But this will not occur if there are disease-germs lurking in her system, such as cancer, tuberculæ, syphilis; then the seeds of those germs, when vital force is low, are liable to become active, and destructive; because the very essential of the change, debility, brings them into active growth, and causes them to locate and grow in the very organs in which the change is progressing. The change stimulates their growth; imparts to them fresh activity. So, as a rule, it is at this period we meet with the greatest proportion of cases of cancer of the womb, and breast, adenoma, and other tumors. The change of life is only critical to the diseased. It is only them that need fear the crisis. To the *healthy*, to those who live according to natural laws, eat healthy food, avoid balls, tight lacing, bad literature, and sedentary occupations, nothing is to be feared. It is well to make no haphazard prediction, but if there is no disease, the process will not be critical. True, the disease may be got rid of; if so, it will mitigate the condition. The change does not cause dis-

ease; it detects it, brings it into active existence, and causes an aggravation of it. Thus, congestion of the womb, chronic inflammation of the ovary, etc., existing at the change, become excessive. Disease has little tendency to leave, or become inactive or quiescent during the change.

The critical nature of a period is shown by its effects on the health in ensuing years. Thus, puberty is not only a crisis of most of the complaints of the preceding years, but it determines the health of the subsequent thirty-two years, for good or evil. In like manner, the change of life, if it can be consummated in a salutary manner, will influence the succeeding period; nay, it will govern the whole subsequent period of life. So we can prognosticate, from the manner of the crisis, whether the after-life shall be good or bad. Five years after a woman ceases tells its own tale in the great additional strength of constitution. The greater sanative change, the greater longevity of woman after the period, her less liability to disease, and death, her very remarkable good health, and almost total immunity from the general run of ailments render her last stage of existence a comfort and a blessing.

From forty to fifty-five is a general period of invigoration for both sexes—a period in which the daily work of nutrition is very actively carried on in our bodies, rendering them stronger, more vital, healthier, and thereby insuring a more perfect performance of all the functions. The change in man is carried on insensibly and worked out without disturbance. In woman the passage is often full of danger, if natural laws have been violated, but the very great improvement that follows the change is so salutary as to compensate for all the suffering.

Although the phenomena of change of life are principally due to withering of the ovaries and suspension of their function, it is aided by and associated with other structural changes, which take place in both sexes, due to coming age, such as the ossification of the cranial bones; atrophy of spleen, and lymphatics; changes in bone, marrow; degeneration of some form; a smoothing down of Peyer's patches in the bowels, and some shrinkage of the brain proper. But after cessation a woman's constitution is entirely remodelled; she takes a new lease of life; decay and suffering has then less hold on her, and she begins anew. The importance of the change cannot be too highly rated, especially if easily passed; for if it is accomplished without much disturbance, so will the future period be healthy; but if gone through with great suffering, then we may expect the subsequent time to be one of long-continued misery. It is a final settlement for good or evil, and it may be reasonably entertained that if it does not excite the activity of some disease-

germ in the body which previously existed there in a quiescent state, and the violence of the change be not excessive, it is reasonable to conclude from thousands of pre-existing cases, that the rest of life will be passed in uninterrupted good health, and unusual longevity attained. The invigoration of the health which follows is often accompanied with a great improvement in personal appearance—where the thin and emaciated become fat and comely, where the timid become bold and daring; while another class become masculine, and lose their feminine appearance; their cheek bones project, the skin loses its velvety feel, creases show themselves, and stray hairs start on the upper lip or face.

The effects of a suspension of ovarian action has a marked influence on all the emotions, desires, affections, passions, as well as on the brain proper, giving rise to debility, prostration, nervous irritability and confusion.

Puberty and change of life are caused by physiological and anatomical changes in the same organs: puberty is ovarian evolution; the change of life involution or stoppage. The true seat of both is in the reproductive centre in the brain; the one growth, the other death to that special centre; the ovaries being merely the organs to perform the work.

When, with proper age and perfect blood development, this co-ordinating reproductive centre in the brain matures (puberty) the seed or egg organs, the ovaries, increase in size, become very vascular, and begin to let fall ovula or eggs every twenty-eight days, and cause in modern civilized women menstruation. When the reproductive centre in the brain dries up, which it usually does after thirty-two years of activity, the change has come; the ovary or egg-bed, which, during the active period was smooth and turgid, becomes dried up, shrunken into a knot like a peach-stone, and it becomes difficult to trace the cavities of the Graafian vesicles, for their walls are pressed together. A few years later they shrink; wither still more; become atrophied, so much as to be no larger than a bean, and latterly completely obliterated, being marked by fibro-cellular tissue. This ovarian atrophy, or shrinkage, or wasting, or withering, comes from a want of germinal influence from the brain—there being no use for the organs, they wither and die. This change is accompanied with corresponding changes in the fallopian tubes, determined by the same cause; these tubes contract, wither, become impervious and perfectly obliterated. The same condition of non-use, want of stimulus, or enfeebling energy causes the womb to contract, become small, round like an orange; its neck becomes thinner, and shorter, and obliterated, and in some cases an obliteration of its mouth takes place. The vagina becomes very narrow, short, and there is a shrivel-

ing up of the pampiniform plexus of vessels which previously supplied the organs with blood, which accounts for the remarkable coldness of the parts. Incidental to this general collapse, the broad ligaments that retain the womb in its position also shrink and disappear. The breasts, which are a part of the reproductive system, also become cold, small, and wasted. During the change they are often seriously affected, being painful and congested, if not otherwise diseased. It would be a matter of infinite surprise how so many phenomena of health and symptoms of disease could be determined by two little bodies whose structure does not appear complicated, but the fact is unquestionable that not the bodies, but the brain, is the source or seat of change. The ovaries are energized by that nervous centre of sexual power located in the spinal cord, opposite the fourth lumbar vertebra, and supplied from the cerebral centre; but although a central act in the brain through the cord, there can be no perfect exercise of sexual power without well formed and healthy ovaries. The ovaries influence all parts of the body (directly the cord and brain) through the medium of their nerves, for as they have both ganglionic and cerebro-spinal nerves, they can react on both the ganglionic nerves and their centres, and the cerebro-spinal and their central organs.

Whether the ganglionic be an independent system of nerves, or an offshoot of the cerebro-spinal nervous system, it is not necessary here to discuss. All are agreed that vaso-motor nerves follow every capillary to their minutest ramification and govern the nutrition of every part of the body. All organs of nutritive life are supplied with ganglia and a plexus of ganglionic nerves; but they all communicate together, and with a larger plexus and more voluminous ganglia, situated in the viscera of the abdomen. And before those foci of nervous matter were discovered, this region, that is the ganglia on the bowels, liver, spleen, bladder, kidney and reproductive organs, was called the lever of forces by which the body is moved. Sensation and motion are dependent on the cerebro-spinal nerves, nutrition on the ganglionic; but there is a concentration of ganglionic nervous power in the central ganglia which gives and receives from each viscus a variable impetus. The ganglionic is a centre of nerve force, capable of controlling and disturbing the various parts of the body by its nervous fluid or soul.

The human body is so constructed that the various component organs act upon each other in the way most conducive to health, until the age of puberty. At that time health may fail and the whole system languish, unless the reproductive organs come into full activity. From puberty to the change

of life, the health of woman cannot be maintained without an energizing influence from the reproductive centre in brain and cord, so as to impart an appropriate amount of ovarian influence. If the ovarian energy reacts under proper nerve stimulus in a healthy way, it will augment, vitalize, energize the visceral centre, or brain, and cause the function of nutrition to be performed with increased energy; give vigor, instinctive consciousness of strength. If the ovarian energy be inefficient, the abdominal brain, the visceral centre of ganglionic action, is half or partially paralyzed, and uneasy sensations are felt at the pit of the stomach, a feeling of sinking, of faintness, gone-ness, or even actual fainting is sometimes induced; defective nutrition follows, with anæmia of the cord and brain, vulgarly termed hysteria, met with at puberty, during pregnancy, lactation and change of life. If the brain does not furnish the necessary amount of ovarian stimulus, so that evolution is inefficient, the menses will come on in an irregular way, off and on and likely scanty; if it be too strong, as under emotion, passion, it will react upon the adjacent viscera and cause violent disturbance.

All the organs in the chest and abdomen are, on their front part, covered over with the cervical sympathetic, similarly endowed with ganglia or little brains. They are knit together by a mysterious net-work of nerves; they sympathize with each other at puberty, menstrual period and change of life, and in this way any disturbance of the ovaries, irrespective of reflex states, will give rise to nausea, sickness, depraved appetite and deranged bowels and kidneys. If the ovarian stimulus be too great for the allied abdominal organs, there may be pain in the ovaries themselves; pain, disturbing sensations, irritation which may be transmitted to a weakened cord and bulb, then hysteria, tetanus, nervous irritability, restlessness, hysterical convulsions, or there may be a numbness in skin and other parts.

The strength or relative weakness of the nervous system may be inferred from the condition of anæmia of brain and cord that is present. The solar ganglia in both sexes form an important centre of nerve force. Insufficient ovarian influence having reached the solar plexus affects the brain chiefly by means of the pneumogastric nerve, so any disturbing influence at puberty, pregnancy, parturition, change of life, may be shown by the distressing headaches, fretfulness peevishness, irritability, capriciousness, perversion of the moral nature, moral insanity. In other cases, excessive or disturbed ovarian action is manifest by high spirits, or depression, a cloud or a weight on the mental faculties, haziness of mind, brain muddled, memory faithless and an unquenchable desire to sleep

during the day, remaining awake all night, almost amounting to coma or lethargy.

From puberty to the change, healthy women, when not pregnant or nursing, drop ovules every twenty-eight days, and as a rule modern civilized women lose about four ounces of blood. But there are women in perfect health, who live according to nature's laws, eat healthy food, avoid modern literature as a destructive ovarian poison, that have perfect ovulation, are easily impregnated, and whose womb does not bleed on the shedding of the egg in the ovary and dropping within its cavity. Those women enjoy the highest possible standard of health. Indian women, in their aboriginal state, seldom lose blood at the monthly period, nothing but a white, glairy discharge.

Sexual involution has an ill-defined beginning and end, and only one fixed date, cessation. The activity of the menstrual period is usually thirty-two years, between fourteen and forty-six; but there are cases, once in a while met with, where the menses stop as early as twenty-one, twenty-eight, thirty-five, and at all periods up to sixty-one. The average, however, is forty-six in healthy women, and more cease to menstruate at forty-five than any other period in life. It depends greatly on accidental conditions of life. Blows on the head or back, frights, and other nervous states may prevent its appearance, and arrest it at any time, either when the discharge is on or off, and, if the shock is grave, forever. Its continuance depends greatly on the state of the health, the richness and purity of the blood, the freedom from worry, struggle, shocks, jars, and uterine and nervous disease; but taking all these into account, the average among our ladies is forty-six. Races, being essentially distinct, have each their peculiarities in menstruation. It is said the Hindoo women run from twelve to sixty, when free from disease; and the Laplanders and other races have different peculiarities and eccentricities.

Ovulation and menstruation stand together, very nearly as cause and effect. Periodicity is an element in a woman's nature. Vaginal blood, even if it occurs with periodicity, when late in life may not be menstrual, but may come from congestion, ulceration at the neck, polypi, and other morbid states. Still there are, as we know, rare cases of cessation at sixty-two or later, in strong constitutions, so it is well to be guarded. Cases at sixty and seventy menstruating are mostly due to some disease. Out of one-half million women who become mothers from under twenty to above fifty, seven thousand bore children from forty-five to fifty years of age, and one hundred and sixty-seven were mothers after they passed their fiftieth year. Cases of menstruation admit of great variation. Iso-

lated cases are met with at six ; more numerous at eight to eleven. Still there are a greater number late, from eighteen to twenty-two ; while the general average does not vary from fourteen to forty-six.

The Irish, at home in their salubrious atmosphere, with a fish diet, are remarkable for their fecundity. Their nervous systems and their ovaries are endowed with wonderful activity. The fish-eating and oat-meal-consuming races, as the Scotch, Swedes, Danes, Canadians, have strong procreative powers, and reproduce themselves speedily.

Ovarian activity, then, is commensurate with constitutional vigor. An unusual prolongation of ovarian life and longevity indicates a healthy condition of the functions of vegetative life, and when prolonged, it implies great vigor, strength, and endurance, and means a good old age.

During the wear and tear, struggles, hopes, cares, sorrows, vicissitudes of life, the ovaries are often simply paralyzed, and their action suspended ; when the difficulty is removed their function will be resumed. Visceral disease has the same effect ; when the disease is cured, and better health brought about, their activity is restored. There may be a stoppage for a long time, and then a recurrence.

A woman past the age of fifty-three may be regarded beyond the age of child-bearing, except in very rare and exceptional cases.. Pregnancy late in life is often mistaken for other diseases ; and late labor is dangerous to the mother ; indeed, it may be regarded as an extraordinary risk.

Cessation is often delayed by morbid blood and affections of the womb and nerves, ulceration of the os. We will again repeat that there may be uterine bleeding without menstruation. It should not be called menstrual unless it occurs between fourteen and forty-six ; comes periodically, or with periodical paroxysms, and the blood has the characteristics subsequently described. On the approach of a fever, or pneumonia, or intense worry, or excitement, the womb of an elderly lady may bleed.

Early cessation is very common, and consists in a premature paralysis of the ovaries ; and this extinguishment of the reproductive force may be caused by hard work, worry, miscarriage, or induced abortions, falls on back, cold, fright, wet, purging, cholera, fever, long trouble, drugs, occupations—all paralyzing influences. It is called early any time before forty-six, whether it be at twenty-one, twenty-eight, thirty-five, or forty-two. This condition runs in families ; mothers and daughters resemble each other in this special department only. Women of the same family usually begin to menstruate at the same date ; have the same kind of trouble, same eccentricities,

same complications; cease at the same time, with the same peculiarities; and even die under the same conditions. In this alone they resemble the mother; in their mental characteristics and conformation, they are specially the same as the father.

Prostitution has a fearfully deteriorating influence on both brain and ovaries, and causes a loss of reproductive power. The vagina of a woman whose sexual act is loose and varied is cold; it has lost its vital vigor and contractility; it has no vivifying influence on the male. Its mucous membrane is purple or livid; it has none of the cherry redness of the virgin, and it is even in a more dilapidated condition than that of the woman after the change. As a consequence, if they live over the three years allotted to their abnormal existence, they change, irrespective of age. Even the conditions of life have a modifying influence on menstruation and change; the former comes on late in the poor and ceases early, whereas in the rich, it is early and holds on longer.

Menstruation usually takes place about the period of full moon in about two-thirds of all cases; the other one-third, in the middle of the month. In spite of this disparity, there can be no doubt but that ovulation is regular, inevitable, uninterrupted; but the menstrual function shifts, owing to some special attribute of the nervous system, and this fact shows that it is governed by nervous influence, and explains how strong emotion may repel or alter the time of its appearance.

Menstruation is the effect of ovarian action, the shedding of an ovule; but the menstrual flow, or a discharge of blood can occur without ovulation, just as ovulation may occur without menstruation. Nervous emotion, over-exertion, reading sexually exciting literature, passion, hearing disagreeable news, fatigue, quarrel, and jars will bring on menstruation in some ladies without an ovule being shed. That sudden passion should cause the uterine surface to perspire blood is a well-known effect.

The average duration of the menstrual function is thirty-two years, which is the possible duration of female fecundity, and that of each successive generation. The mode of stoppage in the largest percentage of women is by a gradual diminution of the flow; by a sudden stoppage of the usual flow, or by a flooding or successive floodings, or by alternate copious or scanty flow, or at irregular intervals longer or shorter than twenty-one days. The greatest number exhibit a diminution, a gradual decrease in quantity, and also in the time of its duration; the other class, where it is erratic and the duration irregular; the next class, where there is flooding, the flow growing less and less, and at long intervals apart, till it becomes a mere show.

The discharge, at first like blood, becomes blacker and blacker, clotty, then like cinder-dust or dirty-green water; in other cases like a lochial discharge, in smell. The menses, in health, are not to be regarded as pure blood, there are certain chemical elements in them induced by the brain, ovarian act, the presence of the ovule, that renders this blood totally different from the blood circulating through the lady's body; so much so if it is absorbed, owing to sudden suppression, it will not mix, but is thrown off at some weak point in the skin, lungs, nose, bowels; it is sweet, not saltish like pure blood, but prior to and during the change it is still further altered in quality, whether it be scanty or profuse, at first paler in color, or later, brown or simply green water. As a rule ovarian influence begins to fail before menstruation becomes irregular, because when the sexual organs are healthy their loss of power is gradual, the ovarian forces become feebler and feebler until they can no longer determine any influence over the uterus and the discharge subsides.

The Period Before and After Stoppage.—The date of the last regular menstruation is to be taken, and the time calculated during which the flow became irregular, scanty, and the health unsettled. The length of the premonitory stage of irregularity, off and on, varies from a few months to six or seven years; the average time being two years and a half before, and two years and a half after. This divides it into two periods of pretty nearly equal length; the period before, with its varied symptoms, is followed by a period after, in which every twenty-eight days there are sensations of a peculiar kind, which continue along growing less and less. These monthly occurrences are very varied, embracing lumbar and abdominal pain, leucorrhœa, headache, diarrhœa, bleeding piles, hysteria, asthma, debility, sweats, dyspepsia, stomatitis, swollen gums, legs; usually lasting four or five days.

When all is over, the perfect recovery of health, and its resettlement on a new plan takes two or three years, after which women are not liable to debility, floodings, sweats, heats, and other unpleasant symptoms of the change.

Diseases, with which a woman may be accidentally affected at the change, may bar the progress of involution, and protract it indefinitely. Fibroid infiltrations in the uterus have been known to delay the change for many years. The ovaries may be shrivelled and shrunk; reduced to an amorphous mass of fibrous tissue, while the womb is still large, and bleeds promptly every twenty-eight days. These events are of vital importance, especially when disease-germs have been lurking in the system for years, as it brings them into active existence.

The great quicksands and precipices which a woman should

avoid during ovarian activity are sexual excesses; the use of drugs; abortions, or miscarriages; and our modern demoralizing literature; these, if indulged in, shipwreck her existence at the change.

The removal of the ovaries during the thirty-two years of activity, induces an artificial, but genuine change. This proceeding is sometimes necessary; this castration of the ovaries is performed when menstruation causes very serious and grave disturbance of the nervous system, as mania, epilepsy, or when they are affected by disease, as interstitial fibroid infiltrations, or tumors, that give rise to flooding, or other very fatal condition. Castration is a grave proceeding; dangerous to life, by inducing peritonitis, and forever, renders sterile the woman, and never should be done without the consent of the patient and her friends, and after consultation with several other physicians.

The question is frequently asked, "Is fecundity possible during the change of life?" Yes, if there are properly matured eggs evolved; but after the forty-sixth year the chances of fecundity diminishes, becoming less and less every year; but it is possible just so long as eggs mature and the menstrual flow appears, however irregular the latter may be; cases have occurred under my own observation.

Is fecundity possible after cessation? Most assuredly no. If the ovaries have ceased to evolve eggs, if they are withered and wasted, shrivelled up and inert, the woman is as barren as a stone. We have already stated that ovulation is not indispensable to menstruation; that with very high vital force, ladies may pass eggs or shed ovules without discharging blood, and become pregnant without ever having the menses. Healthy women never menstruate either during pregnancy or nursing, but there are many now-a-days who do. Conception has taken place before menstruation, so it is only possible when the ovaries and brain are healthy, and when ovules are thrown off, irrespective of the numerous eccentricities of the generative function.

There is a perfect remodelling of the system at the change of life. For thirty-two years, every twenty-eight days it has been habitual for a healthy, unmarried woman to lose an ovum, and with it four ounces of blood, so that when the great crisis in life, the change, comes, there will be numerous efforts on the part of nature to get up various contrivances, compensating discharges and drains, which act as waste-gates, until health is restored or permanently re-established on a new basis. Those compensating agencies are varied and numerous, and embrace the various natural outlets, as the skin, lungs, urine, stool hæmorrhages, and obesity.

Women, at and after the change, exhale a much larger

quantity of carbon than before; their urine is loaded with brain waste in the form of phosphates and chlorides, which indicates a great revolution in the nerve centres; the lithates are abundant also, which shows that nitrogenized elements are undergoing chemical change. The secretion from the skin is very great; there is great heat, intense radiation, exhalation, evaporation, dry flushes; so much so that the caloric of the elements of chemical change bursts in flushes from the face, neck, chest and other parts of the body. The pulse is not accelerated, nevertheless the generation of heat is indescribable; the patient requiring little clothing, and during the intense cold of winter will have doors and windows open. Those heats are independent of another class, namely the heats and colds of nervous depression. The heats or flushes of the change are like hot waves, frequently wafted from the surface of the body eight or more times per hour, decreasing after the change has taken place, and disappearing in two or three years. It is rare for them to continue long, unless the patient is subject to worry or some form of nervous irritation. The face, neck, breast, hands, feet, nails, feel like fire. Florid, sanguine women have a greater power of generating heat than the thin and nervous; in the sanguine temperament there is greater buoyancy, more hopefulness; molecular change is greater than in the dark or bilious; there is less resistance to change; consequently the heat generated is greater, and they suffer terribly from a variety of conditions that a black haired and eyed woman is almost exempt from. Sweats, copious and persistent are also present. Vicarious discharges are very common if there be weakened patches anywhere, as bloody discharges from the nose, mouth, lungs, skin, etc., if these parts are feeble,

The effect of the change on all women is to cause a perfect remodelling of their physical and mental traits: the lean become stout; they experience a great improvement in health. The robust or fat do not fight the battle of the change so well; they cannot convert their superabundant blood to other uses rapid enough; they drag along very slowly; are more liable to hæmorrhages. The breasts in all atrophy, but if the woman gains flesh or gets stout, they usually become quite heavily loaded with fat and become pendulous. Once the change is consummated there is often a grand remodelling of the intellectual faculties, and it is satisfactory to know that the highest grade of intellectual culture, the most profound studies, can now do no harm; so it is at this period of life only that woman should engage in literary and scientific pursuits.

Change of Life. Its Cause and Treatment.—Before considering this subject in a practical light, it is necessary to have a proper knowledge of the generative organs of woman; they

must be looked at in an anatomical, physiological and pathological condition as the great motive power, the potential lever of the world. It is the nervous system of the female reproductive organs that specially solicits our attention, as it is there, in its deep abyss, in its incomprehensible structure of animated tissue, that the ovum or egg is evolved, before any microscope can detect its organization.

In another part of this work, we divided the nervous system into three parts, although essentially one, a unit—the brain proper; the cerebellum and spinal cord, with the reflex centre, the medulla oblongata; and the great sympathetic or ganglionic nerve centre in the chest and abdomen; those three points, essentially one, work for each other; any damage done to the one injures the other two. The three persons in this trinity are co-equal, but as the uterus, ovaries, etc., are covered on their front part with the sympathetic or ganglionic nerves, we speak of it more frequently, and as it is the potent instrument of life, a wondrous power, the citadel of the soul, we may have to recur to it again and again.

Definition.—Change of life may be defined to be that state in which the brain and cord fail to impart the necessary stimulus to the ovary, so as to enable it to secrete ova. It is a change, a crisis, a critical period, a failure to elaborate ova, and cessation of the menses.

Causes.—Although there is but one cause—a failure of the ovaries to shed ovules—still to be more explicit, we will arrange the causes into exciting and real. It is to be understood that it is just as natural for a healthy woman to shed ovules every twenty-eight days for thirty-two years, as for a tree to bear fruit. The exciting causes that bring about a sudden or early change may be any disturbance of the abdominal brain, as violent emotions, intense or unhealthy desires, grovelling affections, degrading passions; hence, fright, grief, worry, struggle, emotional or sensational reading; masturbation, promiscuous sexual intercourse, predispose to a change. Deleterious trades, or occupations, in drug or chemical laboratories are productive of ovarian change. The use of such drugs as bromide of potass, belladonna, ergot, opium chloral, mercury, iodide potass, all acro-narcotics, will in time produce effects analogous to castration—dry, wither, choke the springs of life. Blows on the head or back, poor or diseased blood, disease-germs of typhoid, of syphilis, cancer, tuberculae, etc., are exciting causes.

The true exciting cause is when the brain and cord fail to send the stimulus to the ovaries, and as a result they are sterile, barren; then, as there is no further use for the organs, they shrivell up, waste, and disappear. The uterus also becomes

inert, its normal waves are gone, even the source of their nutrition, their special plexus of vessels, not being needed, wither and become obliterated.

Symptoms.—In enumerating the symptoms, it is not our purpose to describe the changes that take place in the skin and bones, the vertical wrinkles and hair on the lip, or stray hairs; nor the atrophy of the ovaries; the changes in the womb, the obliteration of its neck and vessels; nor other changes. What we are desirous of doing more especially is to describe a train of symptoms, several of which are present in every case, and imperatively demand medical assistance. We shall begin with those of most frequent occurrence. We have already stated that there are at all times two millions of women between forty-five and fifty years of age, in the United States, undergoing the change of life. Now, it is fair to presume that one-half have lived in a natural way, in conformity to natural laws, and pass over the change so easily as to seldom require any medical aid. The other half are those that suffer from one or more of the following symptoms:

Nervous Debility, with great languor and lassitude, is present in every case to a greater or less degree. It begins with the first indication of change, grows worse and worse till final cessation; when that takes place it grows less and less till health is re-established. This is an essential symptom of the critical period, and usually begins to affect most women about forty. Some of the phases of nervous debility may be due to the ordinary wear and tear of life, and are common to both sexes; but at or about the change they form a special group by themselves, occurring with greater or less aggravation in different ladies, variable in each individual, never two alike, and most marked about three years before the complete stoppage, and continuing three years after the change has been completed and a new basis of life established.

Nervous depression, debility, weakness, or some form of nerve tire or trouble, is present in all cases. It is a marked characteristic symptom either in the brain, cerebro-spinal system, or ganglionic. The nerve prostration never slackens its pace, but persists till the change is accomplished, simply modified by location of weakness. It is a perfect revolution; when the stoppage or dropping of eggs cease every organ supplied with the sympathetic is affected; the spleen, kidneys, liver, larynx, face, bowels, womb. The three brains have worked harmoniously for thirty-two years, and now there is a disturbance. This disturbing influence generally shows itself in a diminution of the flow; in a weariness, a torpor, a lethargy, headaches, and an indescribable feeling of goneness; the brain and cord fail to give an adequate stimulus to the ovaries, and

energy is impaired; the ovarian loss itself gives rise to mild or severe nervous disturbance. If there be disease of the sexual organs the symptoms of ovarian disturbance will be more severe, and prolonged beyond their natural termination. If there be something in the nervous system eccentric, the reaction on the ovaries may be analogous to shock or paralysis.

We cannot be surprised at the immense train of nervous symptoms so common at the change, when we reflect on the great volume of brain concerned in the evolution of the eggs, and its complicated and artistic structure, rich in gray or intellectual matter; and when we turn to the visceral brain,—the ganglionic nervous system,—that incomprehensible seat of life, of vital force, of good and evil, located, centralized, and congregated into little lumps of nervous matter, bound together by tangled skeins of nerves, reflected over the viscera, not only the seat of power, but guides nutrition, healthy and morbid, and controls the action of blood-vessels, heart, and lungs.

The third brain, the ganglionic system, and great sympathetic, is an offshoot from the cerebro-spinal at the junction of the last cervical with the first dorsal. The ganglia are scattered everywhere over the viscera, uterus, ovaries, and contain every kind of nerve matter, but are extremely rich in gray or sentient cells. These ganglia must be considered as little brains, each having its own range of power; being very sensitive, through them the brain becomes cognizant of ganglionic impressions. The ganglia serve for a storage of power, of vital force—a source of energy for the sympathetic; the fountain from which ganglionic nerves draw their supply; by the currents of which the capillaries and nutrition is maintained.

The centralization of vital force in the solar plexus and sympathetic renders the abdominal brain of immense importance at the change of life. To show its intrinsic value and its intensification of power, a blow on the stomach will cause instant death, and yet leave no lesion or mark to explain the cause, not a trace. The ganglionic nervous system furnishes to the human frame a nervous influence, a reservoir of nerve-force, giving to the cerebro-spinal a power of which the human mind only recognizes the force when it fails. In the reproductive organs of women, a prominent symptom, even in health, is occasional nerve prostration at menstruation, or after connexion, parturition, or nursing; many women feel a great loss of energy. Woman cannot pass through any stage that communicates life without a momentary loss of a portion of her own vital energy. She reminds us of those animals that die when they have transmitted life to others. Nervous debility is so constant, and so intense in all women at the change, as to be fairly considered the primary symptom; and it is justly so; and her complicated

mechanism readily explains it. Her nerve exhaustion fairly causes her to lose her equilibrium, and some special nervous disease is likely to supervene.

Flushes of Heat are present in about eighty cases out of one hundred, and slight heats and colds in the balance. This symptom is present to some extent in all cases of nervous depression, but the intense heat prior to, during, and subsequent to change, must be explained by the great chemical change going on in the body. The heat is due to molecular action; and the intensity of the heat, as well as its quality, is due to the pathological conditions present, so that women at the change generate more caloric, because there is more change going on. In most cases it is a dry heat, a dry exhalation. If perspiration be present, it is likely cold or clammy. It is to be regarded as a salutary effort at elimination. It usually has an irregular area of distribution, as flushes of the face, breast, body, hands, and feet, and if not diverted off by the safety-valve, the skin, may manifest itself internally in a burning in some organ. As a general rule, the heat starts from the solar plexus in abdomen, then the chest, and face; the parts are suffused, hot, like a burning stream. They are not preceded with a chill unless there is great nerve-shock. The flushes occupy from a minute to a quarter of an hour or longer in duration, and are repeated six or eight times an hour; usually begin three years before, and continue three years after cessation; face and neck are most obnoxious to them, but they affect any part of the body, even the nails, which often feel like fire. Stout or plethoric women suffer most intensely in their severity as well as long duration. These heats never affect the pulse, which is usually slowed. These heats must never be confounded with blushing, which is an act of the sympathetic; our women still blush, even at sixty, seventy, and upwards; and blushing will arouse them afresh. In blushing heat is also evolved by the shock or emotion of the sympathetic. What this nerve does under emotion, it does also, to a certain extent, on the subsidence of ovarian stimulus, and aids, to an infinitesimal degree, in the production of heat. The heat flushes of the change are like tornadoes of heat, heated waves, which cause patient to discard some of her clothing and keep windows and doors open.

Perspirations are the next symptom in the frequency of its occurrence. It may follow the heats, if nerve debility is very great, but it very frequently exists by itself. It is often very great, amounting to twenty or thirty ounces in the twenty-four hours, independent of the insensible perspiration, which is increased. The skin is the most easily moved of all the safety-valves of the body, and is much influenced at the change of life. It is of great service in drawing off waste and solid elements not

needed, and its active function is desirable. The critical nature of the sweats at this period is of much importance; they are often heavy, saturating body-linen and bed-clothes. As a general rule, these perspirations do not come from the entire body, but are generally restricted to portions, as the brows, face, breast, hands, feet, and pit of stomach. Like the heats, they begin early and continue on to cessation, and subsequently diminish in intensity and duration, and gradually disappear.

Leucorrhœa, or the Whites.—Next in frequency, we find this discharge from the vagina, beginning two or three years before cessation, and continuing the same length of time after. It may occur all the time, or at irregular intervals, or periodic monthly. They are so common at the monthly period at this time that they may be considered as its legacy; especially so, when they come periodically. The critical nature of such discharges shows that they should not be stopped, although it may be proper to restrain them. When it occurs periodically, it usually continues several years after cessation.

Hæmorrhage occurs in about sixty cases out of every one hundred; two-thirds of all cases from the uterus; the other third from nose, mouth, lungs, nipple, kidneys, rectum, pubes; skin, in blotches or excoriations. They are all critical, and are to be regarded as the harbingers of serious trouble. Flooding at the change, in some cases, prevents complications, and relieves nature, and affords time for the readjustment of the system to the new order of things. Successive floodings are very common in the robust; but may occur in any temperament as often as there is an overload of blood. The sanguine, with the florid features, are specially prone to it; blondes more obnoxious to it than the dark. A continual dribbling from the womb, at the change, is very undermining to the strength. It does not weaken down so much as when occurring at the regular periods. The best mode of stoppage is one gradual and progressive. Flooding is not always to be laid down to premonitory or existing cancer without the pain in front and back opposite, nor to ulceration of neck or womb. The whole net-work of uterine nerves are confused, upset, and a fright, emotion, passion, excitement, bad news, a fit of sneezing, a connexion, may bring on a flooding. When floodings occur a few months after cessation, it is dangerous, because the system cannot repair itself fast, and the patient becomes much weakened thereby.

Next in the order of frequency of occurrence of symptoms are *Headaches*. We have no words to describe the dreadful headaches of the change of life. It is a frequent, and often a ruling symptom. The pain, and its location, is very variable; sometimes a dull, heavy pain, with drowsiness; at other times it is frontal, sharp, excruciating; in other cases it is in the

temple, or top of the head, or at the occiput; most frequently behind. The nature of the pain may be described as shooting, throbbing, gnawing, boring, or like a nail driven in, or as if the head was in a vice. It varies in intensity from a mere inconvenience, to the most agonizing; sufficient to prostrate the most vigorous. It is often accompanied with nausea, or sickness in the stomach; in some cases there is vomiting. It is purely nervous, and is present in both plethoric and anæmic. It may be associated with pains elsewhere. It is usually off and on, or periodic; and in some cases it is a true neuralgia of the brain, exists with flushes, perspirations, hæmorrhages, etc.

Next in succession comes Drowsiness, Giddiness, like being tipsy, so that when she walks she likes to have something to hold by, or feels like a top. The drowsiness is peculiar; sleeps all night unrefreshed, and falls asleep during the day; sometimes feels stunned and lost for an hour, with hot pain at pit of stomach. Before the change she was all life and animation; clever, sprightly; but now, stupid; let things fall out of her hands, and fall down in attempting to pick them up. Such a condition is often present at puberty, and is often bad when the flow is scanty, painful, or absent. The tendency to sleep is great, and often accompanied with an uneasy sensation of weight in the head, a feeling as if there was a cloud or cob-web on the brain that required removal; loss of memory, power of exertion; heaviness of head; dullness of intellect. This drowsiness, stupor, is often a precursor of insanity. Mental stupor is often present during pregnancy, but passes off.

Catalepsy, Melancholia, Nervous Stupor are due to, and caused by a morbid action of the ganglionic system on the brain, brought about by the disturbed performance of the reproductive organs. It is a kind of spontaneous narcotism.

Hysterical Symptoms are quite common; but they are always associated with nervous debility, flushes of heat, sweats, abdominal pain, piles, or hæmorrhages, such as a gush of blood from mouth or nose.

Epilepsy is very common at puberty; disappears when the menses are established, and is very liable to reappear at the change. Very frequently the attacks are periodic, corresponding to the flow; usually go away when the change is well over. Minor symptoms of epilepsy are very common, as vertigo, sensations, or *auræ*, temporary loss of speech and consciousness, twitching of the facial muscles.

Aphonia, or loss of voice at puberty, is very likely to recur at change, and then disappear finally; so with stammering or stuttering, fear or dread.

Chorea is very rare at change.

Insanity, from the best statistics, is more frequent among

women from twenty to forty, while the reproductive organs are endowed with their greatest activity, than between forty and sixty. This latter time, when hope is fading, and physical strength giving out, is the period when men die insane, and when women are most exempt. From sixty to eighty, when the sexes most resemble each other, insanity affects them equally. The change of life is not prone to insanity; the puerperal state and nursing more frequently give rise to it, which explains the reason of its prevalence between twenty and forty.

Delirium, Mania, at puberty, may be expected at change.

The two mental states known as *Melancholia* and *Hypochondriasis* are very common at the change, particularly the latter, which may be regarded as an exaggeration of other symptoms. There is often blended with it haziness of intellect, self-absorption, love of solitude, distrust of friends, and exaggeration of trifles. There is often associated with those mental states neuralgia and hysteria. They are most frequently periodic, corresponding to the monthly flow; at which period she becomes very gloomy, indolent; scarcely speaks, and imagines a fancied evil is about to befall her. This condition generally continues for three or more years after the change. This symptom is a most common one, often well masked and hidden by the lady; her sensitive and loving nature is disturbed when all is changing around her, and she feels cord after cord snap that anchored her to life; and she, if she has sufficient strength of mind, will conceal her condition. The flame of vitality cannot die without forebodings of decay, and there may spring up doubts about faded charms, failing energy, changed aspect she never before harbored, whether now she may be able to retain the affection of husband, the sympathy of friends, the admiration of the world. Because the strength, the vigor, the vivacity of youth is gone, some women try to convince themselves that they are useless, and make themselves miserable. If unmarried, this change tells her to put aside long-entertained visions of future bliss.

Apathy and sudden change of habits; dislike to exertion, mental or physical, with want of sleep; melancholy and suicidal tendency.

There is often a remarkable perversion of the moral nature; uncontrollable impulses to do things which they know to be wrong; often ungovernable, eccentric, reckless, extravagant, and in other cases avaricious.

The *temper* is strange, peevish, snappish, quarrelsome, invariably uneven.

The nervous system at the change is in such a state of per-

turbation; there is an insatiable desire for alcoholic drinks; a true dipsomania.

An Impulse to Deceive.—Women always surpass men in their stupendous powers of deception. When a man has an object to gain he may deceive; but he does not, like a woman, find a pleasure in deceiving for deception's sake. Untruthfulness is very common, and it is not to be wondered at, under the mental perturbation present. Delirium, vertigo, distorted ideas, and false notions are crystallized with deception.

Kleptomania, or a desire to steal, is very common at puberty, during disordered menstruation, pregnancy, puerperal conditions, and at the change. It is most unaccountable, this impulse to steal, at all risks, at the critical period.

Homicidal Mania.—A tendency to kill is a lamentable consequence of the change.

Suicidal Mania is common at puberty, and recurs at the critical period; less common in women than in men; one woman to three men being affected. In women it is associated with the notion that they are possessed with the devil.

Eromania, or inordinate desire for sexual gratification, is suggested, promoted, and intensified by morbid ovarian influences, uterine affections, and brain irritation. Woman, at the change, is an irresponsible being, being afflicted with some form of insanity; the disturbance of the abdominal brain reacts upon the brain proper.

Apoplexy, Paralysis, in all their forms, are common at this period. In apoplexy, there is the vertigo, the specks and spots before the eyes, the noises in the ears, the choking. In paralysis, the numbness, the feeling of pins-and-needles, the loss of sensation and motion, coming and going in a part, or the whole of the body.

Nearly all women suffer from *neuralgia*, as well as paralytic symptoms, most common about the small of the back; lumbago in the abdomen all the time, or it may be simply monthly; ovarian pain, colic, numbness, paralysis, sciatica; numbness in the hands, arms, feet, and other parts; neuralgia of face, loss of voice, deafness, toothache. Nearly every woman, at the change, suffers from one or more of the above symptoms, and an endless variety not enumerated.

The pains in the back, or loins, and legs, are the most common, and are generally described as radiating from the back, and an aching, numbing, gnawing, dragging, burning, or grinding. Often a sensation as if the back was broken through entirely. These backaches are often associated with pain in the ovary, or abdominal neuralgia; numbness; pricking sensation in feet and hands; loss of power of parts are common; burning

sensations, with numbness in arms, back, and temporary loss of power; neuralgia of the eyes.

There is a whole host of affections that attack the reproductive organs at the change, independent of flooding and leucorrhœa. There is a remittent form of menstruation; vaginitis; follicular inflammation of the vulva; inflammation of the labia; ulceration of the neck of the womb; induration and enlargement of the womb; falling of the womb; uterine polypus; cancers; tumors; ovarian disease; irritation of the breasts; milk, or glutinous secretion from the breasts; copious phosphatic deposits in the urine, with often inability to hold it; bloody urine; erectile tumor at the mouth of the urethra; rectal trouble; piles; abscess; burning in womb and rectum. There is not much disposition to acute inflammation, as the general condition of degeneration going on protects the organs.

Itching about the vulva, or *pruritus*, is very common, and is due to the sugar in the urine at this period of life, and to that coming in contact with the parts.

Eczema on the lips makes the life of a woman unbearable. *Prurigo* and follicular inflammation begin at the change, and continue, in spite of best treatment, for several years. *Herpes*, or *tetter* is another annoyance.

The great prevalence of vaginitis is to be explained by the continuance of sexual intercourse. Some cases are due to morbid states of the blood. A failure of health, gout, and extension of *eczema* up the vagina, or acrid discharges from the womb, which are muco-purulent, greenish, or yellow, or slightly tinged with blood, and more or less offensive and contagious. Vaginitis gives rise to heat; bearing-down pains; disturbance of bladder and ovaries.

The symptoms of change in the reproductive organs are manifold. The ovaries rule supreme over menstruation; and if there is any disease laying quiescent, as a nucleus of a tumor, it will either retard, or give increased activity to the change. From thirty-five to forty-four years of age, when cessation begins to dawn in most women, sexual desire is less intense; the married have fewer children, and the unmarried think less of marriage. This diminution of sexual energy accounts for a great decrease in the number and intensity of inflammatory uterine disease. Many women begin the change of life with uterine disease that has been undetected, or imperfectly cured, and all such conditions are likely to be intensified, or aggravated by the change. Failing health gives rise to an exfoliation of the glands at the neck of the uterus at the change, so that the neck enlarges; becomes soft, baggy. The change is often suspected by disease in the womb, or other parts; but after the change, the uterus is not liable to the old

diseases of its active state. Disease is rare after, and when it does take place, it is a residuary legacy from old times.

The obliteration of the neck of the womb, with the altered shape of the womb, vaginal prolapse, falling, uterine tumors, fibroid, fatty, and mineral degeneration, are quite common.

Women, with cancerous germs lurking in the system, are extremely apt to have them grow between forty and fifty; although cancer, between thirty and forty, is very common. The influence of the change on cancer is to give it an impetus, a start; to give it a rate of progression. The average duration of cancer here is sixteen months.

Swelling and irritation of the breasts commence at the change; they swell, become painful, nipples sore, oozes out serum or milk, or a gelatinous fluid, or a watery, bloody discharge. Tumors now put in an appearance; cancer, if the germs are present in the blood. When the lacteal ducts and connective tissue are disappearing, fatty or adipose tissue becomes very abundant, and there are apt to be lobules of that tissue thrown out. Although disease of the kidneys is rare at the change, still there may be bloody urine, continence or incontinence of urine, and chronic inflammation of bladder.

Two-thirds of all women, at the change, suffer from some irritation of the stomach, liver, bowels, as dyspeptic symptoms, toothache, swollen gums, vomiting of mucus, blood; biliousness, jaundice, constipation, diarrhœa, inflammation of rectum, and enlarged abdomen.

Biliary derangement at puberty, and its recurrence at the change, is the most common of all the disorders of the alimentary tract. A very large number complain of being bilious; bitter, metallic taste in mouth, with headache, nausea, and vomiting; bile in urine, and jaundice. This liver-irritation gives rise to the burning in the rectum, and piles, which are often so troublesome. That piles should be a common symptom is not to be wondered at, when we see the unrelieved plethora of the liver at the change, and when we bear in mind that the liver, intestines, and reproductive organs are covered by ganglionic nerves; that the womb and all the viscera are supplied by nerves from the cord; that the veins of the liver, uterus, and rectum are identical and continuous; it is not surprising that when the uterine discharge is arrested, that the nervous energy and sanguineous current should flow by the intestinal surface, and give us bleeding piles. The swollen gums, dyspepsia, diarrhœa, constipation, spitting of blood are generally periodic.

A permanently enlarged abdomen is very common at the change, and is accounted for in two ways: (1.) by the increased deposit of fat in the omentum and in the abdominal walls; (2.)

to some extent, by an enlarged, inflated state of the bowels, without either diarrhœa or constipation being present.

The Skin gives decided, infallible indications of the change in every woman; it loses its softness, its elasticity, its fullness, and shrinks, and becomes withered and wrinkled; then there are the heats, the sweats, the local burnings in hands, feet, legs, painfully hot; aching in the finger-nails, just as if they were being pried off, a peeling, a rotting of the nails. Besides these, there are various eruptions often present on the skin, as nettle-rash, erysipelas, eczema, blood-spots, tetter, prurigo; swelling of face and legs, either monthly or all the time; varicose veins; ulcers on leg; boils everywhere, but especially about the seat; abscess in the fingers, armpits, neck, groin; sensations of insects in skin are very common; peculiar exhalations from the skin are not uncommon; chronic rheumatism and gout, enlargement of the heart, chronic peritonitis, dropsy, are common at the change; ulcers, varicose veins, goitre, discharges from the ears, nose, mouth, and nipple are very often present; swollen gums, sore mouth, salivation, periostitis of the small bones, and other chronic affections more rare.

There is a long list of other symptoms: the long-continued, persistent debility, with regular monthly pain in ovary or womb, with laughing and crying fits, and intense burnings, to which so little attention is paid; the irritable rectum, with tenesmus; habitual oozing of mucus, or pus, or blood, is too often not attended to.

The most common cause of delay of change, and consequently, prolongation of symptoms, is to be found in congestion and enlargement of the body of the womb, and this uterine enlargement, which delays cessation, is generally the result of sexual excesses, or frequent abortions. This very state, irrespective of hysteria, may give rise to spurious pregnancy at the change.

If the patient is free from disease, and has led a temperate life, the rule, "like puberty, like change," will hold good, not otherwise.

The change is greatly modified by temperament, by constitutional peculiarities or eccentricities, social position; and these modify all symptoms, from the debility and heats, to the pricking sensations in feet, numbness of extremities, trembling of the limbs. Some imagine that the unmarried are more liable to flooding, cancer, ovarian tumors, at the change, but this is not true; the single pass over this critical time with much less trouble than the married, and suffer less. Women of loose habits, given to promiscuous sexual indulgence, prostitutes, those who resort to abortions, suffer immensely—words are inadequate to describe their sufferings. Such states keep up

more or less inflammation through life, and predispose to much trouble at the change. Marrying late in life is also bad; those sexual states maintain congestion of the sexual organs, and are eminently calculated to aggravate all the symptoms enumerated, as congestion and ulceration of the womb, if it exist.

Terminations.—Change of life in woman, at whatever age it occurs, is a final settlement, and exercises its sanative influence on the rest of her life. When it is effected, her mind emerges from a cloud, in which it has for some years been lost. All ladies, while avoiding causes that would be likely to give rise to congestion of the womb, should sustain their intellectual faculties well, read history, train their minds to take comfort from the fact that the period is past, which gives them an immunity from the perils of child-bearing, and the tedious annoyance of monthly restraint, thankful to have escaped real suffering. Women should not torture themselves into imaginary woes, but they should feel the ground steadier under them; they are now less dependent on others, and their mental faculties assume a more vigorous and masculine form.

The change of life does not bring talent, but it imparts the power to bring out latent faculties that have been for years in abeyance. The subsidence of ovarian action depresses one form of love,—those emotional impulses which give passion energy; but at last, when the heart becomes capable of listening to reason, love still rules paramount in the breast of woman, and whether it is called charity, friendship, affection, conjugal or maternal, it is still there. Sound religious ideas often become engrafted, and take a sure hold, covering the evening of life with unanticipated happiness. When once over, and anchored in this new haven, a woman looks back on the time when her health was disturbed by ever-recurring monthly trouble, and her mind distressed by delusion and passion. The importance to a woman of the change is great; she is healthier, lives longer, less risks to life, becomes stronger, and enjoys a great freedom from disease. It is said that a woman at the change loses all her personal attractions; but this is not so. The beauty of childhood appeals for a fostering care; the beauty of youth fascinates; that of mature age excites admiration; but in most women, after the change, there is an autumnal majesty, so blended with amiability, that it charms all who approach within its magic circle. Hersphere is wider, her social influence greater, her field of usefulness extended, and now is her time for intellectual pursuits and efforts. The cultivation of the mind, and its endowment with scientific lore, usurps the place of faded charms. Now woman becomes the guide, the mainstay, the pillar of strength to man in the difficulties and struggles of life; she

harmonizes society, unites its discordant elements, and stimulates the race to great, noble, and laudable ambition.

Time may dull the eye, rob the cheek of its bloom, indent furrows on the brow, but it cannot smother the seraphic fire burning in the hearts of women, prompting them to console, heal the deep and ever-festering wounds that afflict society. Those who have attained their sunset, without having been granted the anxious though desirable vicissitudes of wedded life, destitute of relatives and friends, may find in the philanthropic efforts of alleviating suffering humanity a grateful channel for their affection. Some women, at the change, are perfectly unstrung, unmerved, find themselves solitary and alone in the world, bereft of the sympathy of friends. Travel, occupation, history, religious duties capable of engaging her attention should be inculcated. The continued friction of sound duties restores peace and harmony, prevents brooding, self-absorption.

Isolation causes everything to lose its natural and real appearance and to shine with morbid tints, and should be sedulously avoided.

Social Position.—The position in life exercises a special influence at the change of life. Women who live in a natural way, keep regular hours, avoid reading trashy or fictitious literature, exercise moderately, do not tight lace, and keep their health good, suffer comparatively little, except it be from the flushes and minor symptoms. Women in moderate circumstances get along the best; they are much freer from the symptoms than the spoiled and petulant daughters of the wealthy lords of civilization. The necessity for working hard, the struggle, the anxieties of poverty, the impossibility of escaping these, in our abnormal condition of society, together with insufficient food, insanitary states, increase the sufferings of the poor at the change.

Certain occupations have a good or bad effect: thus, sewing-machine operators and washerwomen suffer most; the movement of the leg, in the one, keeps up ovarian irritation; in the other, the changes of temperature to which they are exposed, are highly deleterious. The close, damp, heated rooms in which mill-operatives, book-folders, catgut-workers, etc., work, increase their sufferings at the change. Hard work has its merits, it cures the nervous affections which assail the rich at this period of life; for luxury, ease, lounging on sofas, in shut-up rooms, is the hot-bed of nervous affections; there they grow in profusion and run into extravagant eccentricities. Few ladies are compelled to work in a heated atmosphere so injurious as the heated ball-rooms of the aristocrat. We would say to the rich and poor alike, that the best way to approach the change, is to get right down to a natural base in all things, and thus

approach the critical period with a sound constitution. A condition of debility, which is the result of all excess, prevents the regular succession of vital phenomena, by which the critical period is carried out; and as the change is marked by debility, when this is grafted on constitutional weakness, loss of power, ill health will be of long continuance with a train of nervous disorders. With those states of urgent debility present, there is not stamina enough left to carry them through the changes successfully. All constitutional affections, all forms of diseased blood, are increased by the change.

Prognosis.—Menstruation is a useful guide for the changes: as it is ushered in so the change; storms at puberty will realize a stormy change. Diseases that preceded menstruation are likely to attend the change. Skin affections, as eruptions of all kinds; hysteria, epilepsy, bleeding at nose, discharges from the ear, boils, diarrhoea; erratic pains before puberty, same condition before change; faintings, want of strength, prevents the succession of vital phenomena and are likely to re-appear.

Puberty does not always bring health; there may be a lack of development, which may produce conditions that incapacitates for exertion; her mental faculties may be lost in dreamy forgetfulness; nervous irritability may give rise to fretfulness of temper, waywardness of disposition, mischievousness. The conduct of some girls at puberty often betrays a dereliction of all principle. There may be some jar, or want of harmony between the action of the reproductive organs and the nervous system, so that the flow may come on, on the fifteenth or twenty-first, instead of the twenty-eighth; same troubles at change.

Sisters are a fac simile of each other as a rule; observe the same date, have the same peculiarities, same crisis, same complaints; as biliousness, headaches, mental condition, everything the same at puberty; same at change.

The plethoric and sanguine suffer most; very much more than the bilious and nervous, and chiefly from flooding and heats, and have a hard road to travel. A girl at ten, without any sign of cerebral or gastric disease, may manifest either a sleeplessness, or drowsiness; the result of the premature action of the ovaries on the nervous system; the precocity of the ovaries are very productive of nerve affections several years before menstruation takes place. Great irregularities and suffering at any period are warning symptoms of a change at any age. If the ovaries work well and smoothly at puberty, and the patient lives natural, follows physiological laws, the change will be unembarrassing, irrespective of age. It must ever be borne in mind that it is only the minority of women who suffer those innumerable difficulties and obstacles at the change;

the large proportion pass the ordeal with little or no suffering. Well-regulated habits, healthy exercise, good moral and religious surroundings, an avoidance of tight lacing, of balls, late hours, unhealthy society and, literature. Women, from want of instruction suffer much; they are ignorant of what should occur, or form exaggerated notions of the perils that await them, and receive no help from their medical attendant, because he is ignorant of their suffering.

Let it, therefore, be clearly understood, that if in tolerable health, and with ordinary care, that they have only blessings to expect from the change of life. We say that the critical period is very dangerous to the tight-lacer, the dime novel reader, to the ailing, to the dancer, to the lazy, to the habitual sufferer at the menstrual period, to those suffering from uterine disease, to epicures, for ices, improper food, sitting on door-steps, sewing-machine operators, and sexual excesses. Very great difficulties are likely to arise from marriage at the change, especially if for the first time. Such a state at the change causes the womb to become congested, and it increases in size four or five times. If marriage is desirable, postpone it, hold it off till after the change has been consummated.

Diagnosis.—Have we means of foretelling the change, and recognizing it when completed? Assuredly we have. The change can be predicted after forty, if there is a gradual diminution in the quantity of the menstrual flow, a gradual prolongation of the inter-menstrual periods, an occasional flooding, with heats and other symptoms; but the grand land-marks are not this gradual cessation, or at once, but in the organic changes that take place. The uterine wave disappears; the ovaries are shrivelled, withered, crumpled up into a peach-stone shape; obliteration of fallopian tubes; atrophy of the womb, becomes round, its neck grows shorter, and thinner, and disappears; vagina becomes narrow and short; coldness of the parts, from a shrivelling up of the pampiniform plexus; atrophy of the breasts; hairs on the upper lip, with vertical creases; stray hairs on the face and chin; and a peculiar, masculine physiognomy. There is a prevailing, all-pervading debility, which cannot be accounted for by disease; the complexion is pale, or sallow, a drowsy look, a sort of stupid astonishment, as of one seeking to raise herself to answer a question; always some irritation of the brain, which shows itself in a knitting of the brows; the disappearance of the menstrual flow, or its irregularity, or scantiness, or its too great abundance. Cessation is to be looked upon as positive, whatever be the age, when the above conditions are present, unless accounted for by nursing, pregnancy, or uterine disease. At forty-five it is a settled fact; but, in order to complete the diagnosis, it is well to add, the debility, the unusual

heats, the sweats, the appearance of discharge dirty brown, its total disappearance, and the other symptoms already enumerated.

The sanguine or plethoric exhibit unmistakable indications of a great aggravation of all the leading symptoms; whereas, the nervous, with their white faces, ever-anxious, nervous look, suffer least.

Cessation should never be mistaken for chlorosis, inflammation of the womb, uterine polypi, uterine tumors, uterine cancer, pregnancy, either spurious or real, or other eccentricities of the uterus.

Some diseases induce early changes in a woman's nervous system, and render her barren or sterile, such as the cholera germ, typhoid germ, the germs of pernicious, malarial, or yellow fever, the germs of diphtheria: under these the ovaries wither, and change takes place. Blows on head and back, fright, etc., we have already alluded to, and they should be weighed in the diagnosis of some cases.

Treatment.—As ladies approach the change, it behooves them to prepare for the crisis—to get rid of all little ailments or disease; to observe and carry out a special regimen, and, so far as possible, to so arrange themselves as to be ready for emergencies; eat the best of food, observe hygienic laws, and place themselves upon a course of alteratives and tonics, such as we will subsequently lay down. Those two kinds of remedies are specially useful at the change. Alteratives are particularly indicated, to aid the change, to rouse up all the glands, to relieve the system of all waste, or effete, or waste-matter; and tonics, to aid in bracing up. In prescribing alteratives, it is necessary to guard against the prejudice, firmly rooted in the minds of many, that the change of life is synonymous with old age, which is not so; for the very prime part of a woman's life is before her, and at the change all ladies are benefitted by alteratives which are not suitable for advanced years. Both at puberty and change, which are periods of a new birth, there is strong vital energy; it may be latent, but it is there, and the use of alteratives, which cleanses the blood, develops unexpected strength and great vigor, and is strictly in accordance with natural laws and the phenomena of the change. But before calling attention to those, we will lay down, briefly, the essential elements, in a dietetic, hygienic, and medicinal view, that should, as far as possible, be observed at the change in all cases, and then briefly allude to remedies for the predominant symptoms.

Diet.—Women, at the change, should eat plain food, as milk, eggs, boiled white-fish, broiled beef-steak, or chops, chicken, game, bread, butter, oatmeal porridge and cream, vegetables of all kinds, and an abundance of ripe fruit; the latter to be used

freely, and to an extent not interfering with digestion. All farinaceous, or starchy food, or sweets, as puddings, tapioca, rice, pies, cakes, pastry, tend to load the system with carbon, and thus generate heat; prolong sleep; cause distaste for exercise, and a tendency to stoutness. Forbid, in all cases, the use of sugar, tea, spices, pepper; all stimulants, together with shell-fish, salted fish, or bacon, ham, corned-beef; malt and alcoholic stimulants. Coffee to be used with moderation.

Women who have a tendency to become stout, require less food and more exercise than the lean. If there is great languor, weakness, nervousness, the diet should be made very generous, and the tonics increased. With the above diet, women will tide over the change well and have no further unsettlement of health to fear. If, however, women go in for eating heavy meals, stimulants, and excess, they will become like men, and have another change to meet after sixty-five. High living, and stimulants at the change, gives rise to early degeneration, which begins first in the capillaries, and steadily progresses to the larger vessels; then to the heart, spleen, liver, kidneys; and this degeneration is characterized by an increase of fat; a non vital substance in the omentum, in the abdominal walls; and, as a result, the belly becomes large, protuberant, pendulous.

Clothing and Bathing.—Whatever the season of the year may be, or locality, or condition in life, flannel should be worn next the skin, at all times, to protect the surface from changes, to absorb perspiration, so as to prevent being chilled. Bathing the entire surface daily cannot be omitted, as it is a great safeguard; its neglect gives rise to great suffering. We might say it is imperative, for the skin is heavily loaded with waste matter. Warm baths are the best, as they remove from the skin copious saline deposits, and other secretions left there by the heats, or the perspirations; besides, being in a warm bath for three-quarters of an hour, enables the skin to absorb moisture, or water, which allays the cutaneous irritation, and dilutes the blood. The warm alkaline bath is like a gigantic poultice, applying its warmth to all the peripheral expansion of nerves, so that it becomes a splendid sedative to nervous irritability. It is perfectly manageable in all cases; temperature increased or lowered at pleasure; and even while in the warm bath cold can be applied to the head, or a cold shower to the abdomen; or by a long-tubed syringe cold water could be thrown up the vagina or rectum to relieve uterine congestion. The alcoholic vapor-bath about twice a week; on other days the hot, or warm bath for over half an hour, followed by brisk friction, is always of utility, and, in some cases, it is well to follow up with massage.

In a small number of cases cold bathing is useful, provided

there is vitality enough for reaction. The mineral water baths, whether of the sulphurous or alkaline kind, are always of the most efficacious character. Sea-water is not of so much benefit unless warm.

Exercise of the muscular system relieves the congestion of the internal organs; it depletes, causes the skin to perspire, the kidneys to work actively, and eliminate uric acid freely; it rouses the liver to action. It should be taken in the mornings; should be moderate, not continued to exhaustion; long walks are objectionable, it should just be enough to carry off the redundant energy, which, when unemployed, or not wrought off, gives rise to fidgets, nervousness, and temper. Driving is excellent; but horseback exercise should never be indulged in at this period.

Change is most beneficial in all things. There is nothing that conduces so much to mental and physical vigor as change. It is a great strengthener of the nervous system in particular. Traveling places the patient in a new sphere; new scenes; new ideas, every one of which makes a call on her attention, solicits her interest, captivates her faculties, completely leads her away into new fields of thought; away from old habits and associations to which she had been long and painfully chained. Change has a most salutary effect on the brain; under it the mind is consoled, and resumes peace and tranquility. Nothing so vitalizing; nothing so serviceable for the cure and prevention of disease at this critical period.

Fresh air is indispensable here; there must be an avoidance of close rooms, badly ventilated apartments, insanitary surroundings; the bedroom windows open at top and bottom.

Amusements.—The ordinary cares of the household are at this period a burden; there should be, if possible, a general easing-up, a lay-off, or rest. The mind could be occupied with reading history, because exciting stories, which are present in novels, induce nervousness of some shade or type; besides, excitement is injurious. For this reason, balls, parties, concerts, operas, theatres, are excitants, and the impure air breathed in those places, in addition to their moral effect, causes them to shock the impressible, susceptible nervous system, and renders the patient sleepless and irritable. All exciting agents are deleterious, being productive of continued irritation and want of sleep, and it must ever be borne in mind that continued sleeplessness is the precursor of insanity. Night after night at theatres habitually subjects the mind to an increased intensity of feeling, which in the silence, solitude, and darkness of the night that follows, destroys its sensibility, and eradicates its typical fissures. All amusements should be of the most stable and healthy kind.

Hygiene of the Reproductive Organs.—This is a most important consideration at the change, when those organs become atrophied and shrivelled up. Nature emphatically points, by this very condition, that their appropriate stimulus should be avoided, and it is neither wise to marry nor to have congress at this unsettled period of life. Connexion at the change brings about uterine disorders and grave complications. Some assert that the sexual appetite is strongest at the change; that the flickering flame of sexual desire gives rise to a final blaze; that there is increased ardency. This no doubt occurs once in a while, but it is rare; the opposite condition is the natural one, merely a distaste for connexion at that period. A marked increase of sexual impulse or ardency at the change is a morbid desire, depending upon a condition of congestion of the ovaries, spinal cord, or brain. The sexual act aggravates the trouble, and leads to serious complications. No woman should marry at that crisis; defer it till it is over; because if performed it will result in flooding, uterine disease, the development of uterine cancer, etc.

Having regulated the general condition of the patient, she should be placed upon a general alterative and tonic course of remedies for at least five or six years; she does not want many remedies, only a few, but they should be good ones; but in all cases she should persevere with them faithfully, changing them at regular intervals of every seven days; and with those breaks the same remedies can be resumed again and again with great efficacy.

The best alteratives at this period are the saxifraga ozonized compound, the mother's cordial, the viburnum compound, and the ozonized phytolacca. Select two out of the above list and give in the usual dose about two hours after meals, and change weekly. If the patient is in very straightened circumstances, so that she is unable to procure those invaluable alteratives, let her do the next best thing, make infusions of blue flag, tag alder, yellow dock, and take them instead, so as to aid the elimination of waste-matter from the body.

The best tonics at the change are the Peruvian bark, white mustard seed, the glycerite of ozone, kurchicine, golden seal, gentian, etc. Of these the Peruvian bark and white mustard seed are the most efficacious; the crude bark is better than its finer preparations: one ounce of the bark to one pint of good port wine, to which add one ounce of the elixir of vitriol; allow the whole to settle. Dose, one tablespoonfull three times a day one hour before meals. In some cases leave the elixir of vitriol out, then it can be given in wine-glassfulls three times a day before meals. The compound tincture cinchona and mineral acids is excellent. At all events, don't deceive the patient by

worthless and inefficient preparations of the bark, nor delude her with tasteless infinitesimal sugar globules. There is a gigantic, a grave change to be aided, shattered vital force to be restored, and it must be effected on the principles of common sense.

Next in efficacy, as a tonic, is the white mustard seed. This is one of the valuable remedies at the change. It is particularly useful to meet the symptoms of debility in a worn-out constitution; invaluable if there be indigestion, or liver trouble, with heartburn, pain or cramp, or a numbness, or a failure to sleep, nerve-tire, prostration. The Peruvian bark stimulates the brain; favors the making of red blood, and is slightly astringent; whereas the white mustard seed operates in a most extraordinary manner in disorders of the organs of digestion and assimilation; on the stomach and liver specially; stimulates the ganglionic nerves laying over the womb and ovaries; corrects all irregularities, and improves the general health. It is a valuable tonic, stimulant, and aperient; strengthens all the organs in the abdomen; imparts activity. The efficacy of the seeds does not depend on any specific power, but from the vitalizing energy which they impart. This is due to a volatile oil which exudes through their skin while in the bowels. The seeds must not be masticated, but swallowed whole; and they can be given continuous for the five or six years of change without the patient becoming habituated to their use, regularly three times a day without leaving off, the patient feeling better and better all the time. There is no better remedy at the change—not one that can excel it. It relieves that indescribable feeling of debility and languor; overcomes drowsiness; soothes the irritable; strengthens; invigorates; increases assimilation one hundred per cent., and aids the vital forces under the terrible prostration, enabling them to hold their own by its effect on the nervous system. To ladies who need constant help it affords great relief; inestimable benefit. It should be taken one hour before meals, three times a day, in one or two teaspoonful doses, always exercising care not to bruise the seeds. It never fails to afford great amelioration. Its gentle action on the bowels is very salutary, as it is always important that bowels and skin should be stimulated. The glycerite of ozone operates well in all cases, and combines the action of both tonic and alterative. The extract of kurchicine is also a very valuable tonic. Infusions of golden seal, gentian, collinsonia, wine bitters are good tonics, but not of much utility at the change. Next to the Peruvian bark and white mustard seed may be placed the kurchicine. All tonics are best given one hour before meals. In ordinary cases the above simple altera-

tives and tonics are all that the great proportion of cases require, and can be readily carried out by the patient herself.

But in addition to these there are often met a train of symptoms, some of which are present, and require special remedies and management. To these we will now solicit attention.

Nervous Debility.—This debility at the change is peculiar; sometimes it depends on an excess of blood, and in other cases upon too little blood. If it depends on an excess, for which there is no drain, it is a good plan on the first appearance of irregularities which characterize this period, to curtail rather than augment food. Debility, when in the family way, or nursing, is benefited and often overcome by a very liberal and generous diet; but at the change this surplus blood cannot be utilized. In some cases it is advisable to establish a drain by applying two small blisters, about two inches square, on each side of the nape of the neck for six hours, every second or third day, so as to keep up a slight discharge. These off and on periodic blisters to the nape of the neck are of great utility when disease-germs are suspected to exist in the blood.

In debility, with anæmia or poor blood, there must be more and better food, with rest, and a free use of the tonics already laid down. It is almost useless to experiment with others. Preparations of phosphorus, although very strengthening, imparting keenness and vivacity to the mind are contra-indicated, because they predispose to fatty degeneration of tissue; of the heart, liver, spleen, kidneys. The same objection is to be urged against malt and spiritous liquors. Iron is not a good tonic at the change, as it increases the heats by retarding the action of the liver. If it is tried, the acetated tincture is to be preferred.

Flushes of Heat.—The skin at the change suffers from flushes, heats, sweats, eruptions. They all pass off, as a rule, after the change. The flushes are the most tenacious, often holding on for years. Prurigo, or itching, or eczema are the most troublesome, and are blended with the hot flushes; have their origin in the latter. In the treatment of them, it should be borne in mind that they are increased by emotion, nerve-shock, external heat, as in cooking, washing, ironing, baking, hot rooms, hot drinks, over-feeding. In arresting diarrhœa, leucorrhœa, flooding, over-clothing, all these, as far as possible, should be avoided; the Peruvian bark mixture, the white mustard seed, are to be increased in dose; the bowels to be kept rather open, and the usual daily warm baths scrupulously carried out. Various local applications, "cooling," should be applied, as bay-rum and borax, borax water, and the face, cheeks, neck, breasts, or other parts can be dusted occasionally with puff powders, which are very cooling, and contain no deliterious agent.

In some cases the flushes are preceded by a chilly sensation, or coldness; some even tremble with cold before the heats come on; others have associated with it aching in the nails. When sweats follow, it denotes great debility and congestion of internal organs. Sometimes the flushes are anomalous, preceded by strange sensations in the skin, which in numerous cases resemble a beating, like an animal throbbing in the stomach, or the fluttering of a bird, sensations that disappear when the perspiration comes. Some women are living furnaces, and insist upon the doors and windows being left open in winter time, and woe betide delicate women compelled to live with them.

In such cases good results follow the use of salines in alternation with preparations of sulphur, as the tincture, in twenty or sixty-drop doses three times a day; or sulphur and cream of tartar; or sulphur, fine flour-sugar, and white resin. In other cases infusions of sassafras or yellow dock are of efficacy.

Sweats.—These are simply evidences of great brain prostration, sweat running off the forehead or the entire body, obliging the patient to change linen several times a day, and when in bed literally soaking the bedclothes.

To a certain extent sweats are beneficial, they clear the body of superfluous material; but when they are excessive they hinder the insensible perspiration—that exhalation so necessary to health. Besides, when they are excessive they denote a passive permeability of the skin, caused by a loss of nerve power. It is not well to check them entirely, as such a proceeding will cause internal congestion.

Try such simple remedies as aromatic sulphuric acid and quinine, tincture of sulphur, or in some cases a tea of pleurisy root.

Leucorrhœa.—This should not be stopped, although it is well to syringe out the vagina three times daily with infusions of white pond-lily, or witch-hazel, or strawberry leaves, and if there is any itching or burning, borax should be added. As a general rule, the injection should be tepid or cold.

Hæmorrhages from nose, mouth, ears, nipple, navel, ulcers, vagina, are common. If they are not excessive, mitigate them, but do not check altogether, as they are often salutary. The regular treatment by alteratives and tonics should be adhered to, but if they are violent or excessive try ergot, gallic acid, and port wine, digitalis, or the alcohol, turpentine, and sulphuric acid mixture. At the same time, if from the vagina, enjoin rest in the recumbent posture, head low, foot of bed elevated, cold drinks or ice in mouth, small sponges, saturated with vinegar, inserted up vagina, and changed every three hours. Great care and good judgment should be exercised in its arrest.

Headaches are often promptly relieved by guarana, four tea-

spoonsfull of the fluid extract every few minutes, or two or three grains of caffeine, or, that failing, a four-drop capsule or pearl of nitrite of amyl inhaled; these failing, treat it under the following head :

Sleeplessness, Giddiness, Drowsiness, with Headache, or Cerebral Neuralgia. In those depressing states, hyoscyamus is of great utility; repeat till it affords relief. Hyoscyamus suits the nervous disturbance of the change in a most excellent manner. The dose and its frequency of administration will depend on the condition. When the pain is very great try croton chloral. If these fail, then bromide of potassa and bromide of ammonium are of utility, either alone or combined with chloral hydrate, as follows: Take one ounce of camphor-water; three drachms of bromide of potassa; one drachm of bromide of ammonium, and two drachms of chloral hydrate. Mix. Dose, one teaspoonfull every two or three hours till relief is obtained. But if that fail, and nothing will allay the intolerable pain and giddiness, which render existence unbearable, give morphia sufficient for the purpose rather than let the patient suffer. Sleeplessness, with cerebral neuralgia, at the change, often resists our best remedies, and it is necessary to tack around considerably, and only in the event of all remedies failing should the morphia be given, as at no period of life is a habit so easily acquired as at the change, so that with alcohol and opium we should exercise great care. Camphor is a valuable remedy in those cases; it stimulates the nervous system to increased action; it corrects the toxic influence which the reproductive organs have upon the brains of some women; it abates the sexual sting by acting on the cerebro-spinal nerves of the internal organs of generation, not on the ovary or testicle. Large doses of camphor to child-bearing women do not prevent conception, like bromide of potass, nor induce impotence, but simply appeases the excitement of the generative organs at the change. It may be given alone, or with lupuline from the hops. Sumbul or musk-root, tincture of green root of gelsemium, operate beneficially. The inhalation of the nitrite of amyl moderates cerebral irritability. Topical applications to the head are often of great value; as, for instance, take two pints of water, to which add two ounces of liquor ammonia, one ounce of spirits of camphor; mix, and apply to the head for fifteen or thirty minutes, or longer, and then remove and apply vaseline ointment. Or, another good remedy is to take two ounces of olive oil, the same of chloroform, and half an ounce of menthol; mix, and rub into the painful part. The irritability of the brain at the change is caused by and aggravated with ovarian disturbance, and it is a good plan to use both rectal and vaginal suppositories of belladonna and opium. Veratrum viride, and aconite may be given

with benefit if there is plethora. The same characteristic symptoms, as headache, giddiness, drowsiness, are present at puberty, and at that period bromide of potass is inadmissible, and never should be given.

During the change the brain is often unhinged, so that catalepsy, epilepsy, melancholia, hypochondriasis, insanity, apathy are present, for the management of which see those different heads.

Clever women often lose confidence in themselves at the change, and are unable to manage their own affairs, and their moral treatment, for a few years, requires great care. The disturbance of this crisis tells heavily upon her. Very frequently her mode of dealing with everyday occurrences of life betrays a want of principle, strongly contrasting with her previous rectitude, and a return to that untruthfulness that may have existed at puberty. There may also exist every idiosyncrasy, peevishness, irritability, ill-temper, ingratitude, passion, eccentricity. It is no uncommon thing for a high-toned Christian lady all through life up to the change to desert her husband and children for a scamp, while others make life intolerable by their tyranny and hate the long-cherished object of their affections. Some become moody, silent, gloomy; neither loving nor hating. Others again, in the midst of wealth, talk poverty and indulge in a propensity to steal, while another class feel like committing grave crimes. The nervous system is unhinged, still it will pass away and must not be regarded and treated as insanity, for all the strangeness of temper, the fitfulness of spirits, the perversion of character will abate and disappear under proper care. But the patient requires judicious care, removal from home excitement, new scenes, the intelligent sympathy of friends, and the support of strong minds. The most amiable at this time become annoyed with trifles, and are often passionate, quarrelsome, fretful by the slightest worry or excitement. Derangements of the stomach and liver are very common. This disturbance shows itself in every imaginable form of dyspepsia and biliousness; the kidneys also suffer. The general treatment as laid down for those affections should be carried out, and nitro-muriatic acid and phosphate of soda given. Diuretics are very valuable and deserve attention.

Diarrhœa is salutary and must not be hastily checked. Sometimes useful to encourage by giving small doses of either of the following mixtures, say about ten or twenty grains thrice daily: sulphur, one ounce; calcined magnesia, half an ounce; mix; or equal parts of borax and sulphur. In some cases of diarrhœa great benefit accrues from the use of the liquor ammonia acetatis in teaspoonful doses as above.

DISEASES OF THE BREAST.

INFLAMMATION OF THE BREAST.

The male breast, being in a mere rudimentary state of development, is rarely attacked with inflammation, but generally the female breast, and that also during the state of activity or lactation. True, we meet with cases in infants at birth with a secretion of milk, also in highly sensitive ladies during the days of menstruation; and in others, from the period of conception to the birth of the child, the breast manifests a degree of activity, and in some cases milk or serum is secreted: but it is safe to say that mammitis is generally met with only during lactation.

The predisposing causes are debility, great development of the sympathetic, which is reflected over the breast; hence emotions, passions, as worry, grief. The ordinary exciting causes are cold, blows, violence, irritation of corsets, external injury; more rarely from sympathy with irritation of uterus, with which organ it is in direct connection, ovarian, gastric, hepatic, renal, intestinal irritation. It may be either acute or chronic.

Symptoms.—In the acute form there is the shock, with pain, swelling, and induration of breast, rigors and a fever, with prostration, rapid pulse, arrested secretions, often slight delirium. Arrest of secretion of milk and suppuration soon follow.

In the chronic form there is enlargement of the gland and induration; milk is either wholly or partially arrested. It may follow an acute attack, or come on by itself. It is more likely to occur at other periods than pregnancy and lactation. It may also terminate in abscess.

Treatment.—In acute inflammation of the breast the best plan is to treat actively; open bowels with repeated doses of salines; administer aconite, veratrum, and belladonna for fever; and if patient does not perspire freely, compound tincture of serpentaria; relieve pain with morphia; milk to be drawn off at regular intervals by breast pump, and hot linseed poultices applied. If it is deemed best to arrest the secretion of milk, apply belladonna, iodide of potass, and muriate of ammonia, and keep bowels free with salines. This latter plan makes short work

of the inflammation. Subsequently tonics, and good, nourishing food.

In the chronic form keep arm in a sling, or quiet; free purgation with salines; apply the belladonna during the night, and over all, compression with a roller round entire body; during day fomentations of hot vinegar, and nitrate of potass. If there is any milk, draw off.

Constitutional treatment is of great importance, alteratives and iodide of potass. If suppuration take place, discontinue the above, poultice, and as soon as fluctuation can be detected, open freely, and administer tonics, and good food. As a result of both acute and chronic inflammation of the breast, if not managed with great care, we are liable to have abscess.

ABSCESS OF THE BREAST.

This also may be acute or chronic, the former a result of active inflammation, the latter of chronic irritation. The lymph that is effused in inflammation may be either in the substance of the gland, or between the gland and skin, or between gland and chest walls, and it is in those three locations that we find matter in abscess. It must always be preceded by inflammation and effusion of lymph.

Symptoms.—*In acute abscess*, which occurs during the active stage of inflammation, the patient is seized with rigors, and the pain, which was intense and steady, changes to a throbbing and sense of weight; breast greatly engorged; formation of a painful point; by and by fluctuation. In the chronic form there is little local pain or constitutional disturbance. There is the local swelling or lump; rigors that come on at formation of pus scarcely perceptible; little throbbing pain can be detected; matter forms slowly. It is this form that is associated with debility, and occurs outside of the puerperal state of activity. The induration, or lump, or mass of effused lymph, is often mistaken for a tumor. Even when pus forms, fluctuation is indistinct.

Treatment.—If it is quite clear that no softening has taken place, then place patient upon alteratives and tonics, with best of food; apply ozonized clay to the entire breast, leaving nipple bare, and over and above all a roller encasing the entire chest; firm compression. If clay causes any redness, camphor, belladonna, and lard, with iodide of potass; when redness disappears reapply the clay. By this means the lymph will be absorbed. But if you are satisfied, either from the softening of the mass, or from rigors, or sweats, or throbbing, that the lymph has broken down, then by all means poultice with a lye poultice during the day, made of wood ashes and slippery elm, or slippery elm and bicarbonate of soda, and during the night lin-

seed poultices and laudanum, supporting the patient well by food and tonics.

The clay treatment, in the prevention of a breaking down of lymph, and preventing abscess, is most successful.

DISEASES OF THE NIPPLE.

The mammilla or nipple of the breast may be the seat of numerous morbid processes. Its peculiar anatomical character renders it liable to become the seat of diseased germs, so that we frequently meet with the germs of eczema, lepra, lichen, psoriasis, the colonies forming crusts, scabs, and the like, irritated or aggravated by corset bones (see *Skin Diseases—Antiseptic Applications*). During lactation, especially at the commencement, nipple is very apt to become tender, from mother permitting it to lie in child's mouth. Young or inexperienced mothers are not aware of the fact that the child should be nursed at regular intervals of two hours apart; that the child should empty breast perfectly, no milk left in it; because if there is, it will irritate the gland, dry up the secretion, so that the mother will become a poor or scanty nurse. When nipple is removed from the child's mouth it should be well dried, and care taken that no article of dress irritates it. Nursing mothers should wear flannel summer and winter, so that the breast be always covered with this vitalizing covering, so arranged as to permit breast to be easily uncovered. The practice of bathing the nipple the last two months of pregnancy, in order to harden it and prepare it for work, with port wine and bark, brandy, or astringents, is not to be recommended among our ladies, who are highly civilized, whose nervous systems are keen, liable to impressions. When we look at the intimate connection of the nerves of the nipple and the uterus, such a practice is not likely to be followed by good results.

After a good, hearty meal the child's mouth should be washed out, so that no milk will decompose or become acid, and cause irritation. The degradation of the living matter concerned in either the nutrition of the nipple, or the mouth of child, in all irritations causes ulcerations, cracks, fissures, chaps, or abrasions, furrows, and the disease-germ, *oidium albicans*, appears, which can be carried from the nipple to the babe's mouth, or from its mouth to the nipple,—a regular contagious disease, because there is a living germ present. The practice of mothers permitting friends, children, and others indiscriminately to kiss the infant never should be tolerated, as a large percentage of individuals have those living germs of disease in their mouths, or are affected with other germ-disease.

If there is, then, nursing sore mouth or aphthæ, then the above disease-germ is present, and it will require care, tact,

skill, and perseverance to get rid of it. The cracks and abrasions about nipple are literally loaded with it. True, parra-citides, as ozone ointment, or sulphurous acid lotion, or borax and glycerine, will destroy them, and if a rubber shield is worn when babe is nursing, they will heal up rapidly, but there must be care and watchfulness to prevent their recurrence. If there is a slight tenderness either in mouth or nipple it should be smeared over freely with the ozone ointment, or the borax and glycerine.

The nipple is often found to be the seat of chancres, syphilitic sores, mucous tubercles, and the like. Those are generally the result of direct inoculation, the application of a diseased mouth to the nipple. Mothers should be extremely guarded in permitting any child except their own to take the nipple in its mouth. Neither should any animal or individual take her nipple into their mouth on any pretext. The destruction of the germ with ozone ointment is sufficient, with constitutional treatment, in all cases.

Cancer germs are often found on, in, or about the nipple of both males and females; the buckle of the suspender in the former, and the bones of corsets in the latter, are exciting causes.

MASTODYNIA, OR NEURALGIA OF THE BREAST.

The breast, in ladies of high civilization and culture, with a strong nervous temperament, suffers from neuralgia. This may be due to blood poisons, or disease-germs, irritating the weak mammary nerves, or due to reflex states, induced by masturbation, uterine or ovarian irritation or disease. The inherent cause of the trouble is an organic weakness in the nerves of the mamma. This may be induced by a variety of causes, as occupation, corsets, operations upon the breast, and imperfect apposition of flaps, or bulbous condition of nerves, blows, sitting at benches, or toying with the gland.

This condition of neuralgia exists without any structural disease of the gland.

Symptoms.—Pain in the breast of a sharp, lancinating character, or it may be an aching, wearying kind, but usually like neuralgia elsewhere, acute and liable to exacerbations. There may or may not exist a slight puffiness, or swelling, or even an increase of temperature of the affected gland; and even the lobules may feel rather firmer than natural. But it is more generally the case that the gland feels healthy to the touch. When due to uterine or ovarian trouble anæmia is generally prominent. In some women the breasts enlarge and become irritable; suffer from neuralgic pains at and during menstruation. In all cases there is some impairment of general

health; nervous dyscrasia; loss of appetite; constipation; leucorrhœa; restless nights; anxiety.

Treatment.—Immediate relief must be afforded of the distressing pain; for this purpose pulverized opium and hyoscyamus must be given at intervals, and dry heat locally, followed by belladonna plaster to the entire breast. As soon as pain is relieved, the cure of the disorder upon which the pain depends; search carefully for malaria, mercury, syphilis, gout, rheumatism, anæmia, chlorosis; but above all for ovarian and uterine irritation, and the greatest attention to diet of the best; proper outdoor exercise; daily bathing; flannel clothing, and regulated bowels.

Alteratives and tonics, embracing ozonized phytolacca, or saxifraga, iodide potass, iodide of lime, glycerite of ozone, and kepheline, sulphate of quinia, cinchona.

No application to breasts equal to the belladonna; if the plaster does not produce the necessary anæsthesia, put on the chloroform, aconite, and belladonna liniment; the chloroform will carry the belladonna down to the deepest nerve. There should be proper support, but no pressure. The uterine trouble should be seen to, and removed, according to its cause.

Young infants, boys, and girls about puberty, are liable to slight neuralgia of the breasts. In some cases there are enlargement, tenderness, and secretion of milk. There must be no irritating applications applied, no friction, nor any stimulating application, the belladonna plaster being usually sufficient.

AGALACTIA, OR DIMINISHED SECRETION OF MILK.

A diminished secretion, or complete absence of milk in nursing women may be due to a variety of causes, as general weakness of constitution; mental shock, or long-continued worry; exhausting disease; general plethora; acute or chronic disease of the nipples; torpor or inertia of the mammæ; return of menstruation while nursing; approach of change of life; improper use of drugs, chloral, opium, belladonna, iodine; meagre or insufficient food; over-work, or enervation; careless nursing, in not permitting child to empty breast; sexual excesses; modern literature; demoralizing influences.

From among these and other causes, *torpor* or *inertia* of the breast is the most common variety. Two months before parturition the intending mother should be requested to take, once or twice a week, enough of castor oil to move bowels gently, and as soon as she has recovered from the shock of parturition, a full dose. The child at the same time should be permitted to take nipple in its mouth; if the latter is flat, or not sufficiently elongated, it should be gently drawn out by the mouth of an attendant, in this way the secretion is solicited. Castor oil, of

all remedies, is the best for exciting the secretion, and the infant's mouth a natural stimulant. The breast in all cases is to be covered with flannel and kept warm; mother should take hot drinks, oatmeal gruel, linseed tea; if still tardy in coming, hot poultice of boiled and bruised red carrots, in which castor oil is freely incorporated, should be applied to breast, and repeated. Diet, if there is no uterine inflammation, should at once be generous: beef, mutton, game, poultry, white-fish oatmeal mush, potatoes, parsnips, carrots, all tend to favor secretion. Next to castor oil, internally, and locally to breast, ranks calabar bean, fennel, and anise seed, oils or waters. There is little use in electricity. The tincture of calabar bean, in fifteen to thirty drops in water thrice daily, or five to ten drops of either of the two oils on a little sugar. Any cause that can be detected should be removed.

Defective lactation is not common when the mother is healthy, but among the weak and delicate it is very common.

When it arises from over-feeding, over-stimulation, late hours, excesses, there is a true torpor of the breast; as a rule, it is best cured by purgatives, the most efficient being castor oil. Beer, wine, whisky, should be rigidly forbidden to all nursing ladies, as they cause swill-milk, and are destructive to the growth of child. Diet should be restricted, and causes removed.

Defective lactation from anæmia and kindred states is the most common. It is to be overcome by a generous diet of animal food, fish, oatmeal, potatoes, carrots, parsnips, milk, eggs, and extract of malt, and using milk instead of tea or coffee. As nearly all our malt extracts are worthless, a pint of old Bass's ale can be substituted, which is a pure, unadulterated extract; a half-pint in the forenoon and the same in the afternoon, and while taking it a tender-loin beefsteak, with bread, butter, etc., to constitute luncheon. This is not to interfere with the regular three meals a day. All food and drink should be warm. If the case is an extreme one, raw eggs several times a day, and cream to the oatmeal porridge. Avoid drugs if possible. If the appetite is faulty, port wine and cinchona before meals.

Defective lactation is often due to sore nipples, or rather to the inability of the mother to permit babe to empty the breast. The germs of aphthæ, which are abundant, must be destroyed and healed up as quickly as possible.

Defective lactation from the use of drugs.—It is a most reprehensible practice to administer drugs, as iodide or bromide of potass; acro-narcotics, as belladonna, morphia, chloral hydrate, alkalies, and other drugs, to nursing ladies,—drugs that dry up, wither, and atrophy the nerves of the gland.

Defective lactation, due to a premature return of menses, should be treated by rest, freedom from excitement, and cinchona, port

wine. Ladies, while nursing, should never menstruate, not until the infant is about fifteen months old. Over-work, fatigue, and other causes, should be seen to. As a rule, sexual congress is unfavorable for a secretion of milk.

Galactorrhœa, or Excessive Secretion of Milk.—A super-abundant secretion of milk in nursing women, owing to which excess the milk keeps continually oozing away, sometimes in large quantities, keeping the patient's clothing wet, besides being a heavy drain upon the system; from which anæmia, hysteria, dyspepsia, tuberculosis often arise; as a rule, milk is poor in quality.

To diminish the secretion, same diet as in defective lactation, but an avoidance of the malt extract. We have some valuable remedies to diminish or arrest secretion: the application of belladonna, either in extract, plaster, or ointment, to the breast, will cause an instant arrest of secretion, by temporarily paralyzing the nerves of the mammæ, upon which secretion depends. The use of the drug internally has the same effect, but not in such a marked degree. All acro-narcotics, as stramonium, hyosciamus, have the same property, but not in such a striking degree as the belladonna; that is sure, and with it the physician can either diminish or arrest the secretion of milk at will.

The iodide of potass is peculiarly useful; and the local application of the nitrate of potassa and vinegar to the breast is not to be overlooked, especially if inflammatory symptoms, as tension, swelling, exist; bowels at same time being opened with salines. The application of warm vinegar, in which nitrate of potassa is dissolved, has a good action in arresting the secretion, but it is very withering to the secretory function of the gland; it is best applied by wringing flannel cloths out of the mixture, and changing frequently.

Lobelia, in ointment form, acts like belladonna, but is slow and nauseating. Camphor and conium in pill form is very useful: and camphor dissolved in melted lard, and applied to the entire breast, is not to be overlooked. Sage, hyssop, catnip teas are popular remedies and can do no harm.

HYPERTROPHY OF THE BREAST.

Enormous enlargement of the breast is often met with in both single and married women; sometimes one gland, in other cases both glands slowly increase in size. It is not attended by inflammatory symptoms; no heat, pain, induration—nothing but progressive enlargement, which becomes burdensome and unsightly. The affected glands may point right out, but more generally they hang, loose, flabby, and pendulous, reaching, in some cases, well to the navel or knee.

Causes.—Rather obscure; in some cases we can see its connection with goitre; in another class with masturbation; while

in still another, uterine and ovarian irritation, chiefly from imperfect sexual intercourse; impaired health, etc.

Treatment.—Alteratives and tonics; every possible means to improve the general health and activity of the uterine organs should be resorted to. As a rule, however, all means are very unsatisfactory and unavailing. Amputation of breasts is most invariably followed by tetanus.

TUMORS OF THE BREAST.

The female breast may be the seat of a variety of tumors. Some are simple, and devoid of pain and lymphatic engorgement, and composed of the normal elements of the body; others are malignant, or consist of a mass or aggregation of disease-germs,—the degraded bioplasm of their own bodies,—which are always painful, and attended with lymphatic engorgement in two-thirds of all cases. The implication of the lymph-channels has an important bearing on both kinds of growths.

(1.) Lacteal Tumor.—Milk tumors are generally due to violence or blows, which cause a rupture of a lacteal tube, which permits of the escape of the milk into the surrounding connective tissue; or it may take place from an occlusion of the orifice of a milk-duct, by inflammation of the nipple, and various other mechanical conditions. It occurs only during the activity of gland in lactation.

Symptoms.—A round, oval, or cystic swelling, varying in size from a walnut to that of a large orange or pear, can be felt, which, when recent, is elastic and fluctuating, but as its watery portion becomes absorbed, it becomes firm and solid. There is an absence of pain, and the general health is unaffected. So very little annoyance does it give rise to, that the patient may not discern the enlargement for quite a while, or by accident, and when she does so becomes greatly alarmed, fearing cancer. If the patient is tubercular, the coagulated caseine in the lobule, or in connective tissue, sometimes becomes a concretion, like chalk.

Treatment.—If infant is old enough, or not near the approach, or during the summer heat, wean the child; arrest secretion of milk by belladonna; administer saline purgatives; and subsequently apply ozonized clay to the breast, and place patient upon an active course of alteratives, as compound phytolacca ozonized, iodide in stillingia compound, glycerite of ozone. If there is suppuration, incision and same treatment as for abscess. As a rule, there should be no interference with the coagulation until gland-tissue becomes inactive.

(2.) Fatty Tumor.—Masses of fat may be freely and evenly distributed throughout the entire connective tissue of the gland, or in nodules, or aggregation at different points. Its doughy,

inelastic feel and perfect freedom from pain will be good points by which to recognize it. They grow slowly, give rise to immense bulk and considerable inconvenience.

Treatment.—Ozonized clay is the only known remedy that will cause a dissolution of those growths. Kept on the breast or tumor constantly, if no redness of skin is produced; if redness is caused, to be removed, and lotions of borax applied, and then the clay reapplied again and again. Internally, alteratives, as in lacteal tumor.

(3.) **Fibrous Tumor.**—Fibrous tissue may be effused in a nodule, or mass, in the breast, constituting a tumor of irregular shape, hard, dense and fibrous; it may become large. No pain or lymphatic enlargement. General health good. In some cases they assume a cartilaginous or bony consistency. They, as well as the fatty, depend, the one upon an excess of adipose tissue, and the other upon a super-abundance of fibrous tissue in the blood, owing to some constitutional defect.

Treatment.—If not very dense or hard, the same treatment as for the fatty; but here alteratives as compound phytolacca, iodide of potass, glycerite of ozone, play a most important part in procuring their absorption. So those remedies should be persevered with, and the clay kept on, alternately with belladonna, iodide of potass and muriate of ammonia. Even in cases as dense as bone, they can often be absorbed with the above remedies. Never tamper with electricity or irritants.

(4.) **Hydatid Cysts.**—These cysts, containing the larvæ of the tænia echinococcus are often met with in the female breast. The echinococcus are usually found in the fluid contents of the sac.

They should be treated by a free incision and removal of all the cysts, especially the parent one. Nothing but their extirpation suffices.

(5.) **Glandular Tumor.**—Irritation of various kinds, as corset bones, dress; mechanical violence, as blows, contusions, etc., often cause a sort of glandular growth in the interstitial structure of the breast. In one variety of partial hypertrophy of gland structure we find the tumor dense, compact, lobulated and provided with a fibrous capsule; with ducts and sinuses developed. In another class, there are cysts with growths attached to their walls and floating in a fluid; while, in still another class, dilated ducts are converted into cysts, with growth of gland springing from their sides.

These glandular tumors, made up of the substance or outgrowths of the breasts, occur in healthy women, between puberty and the thirtieth year of age; and single women are much more liable to them than the married. Their growth is slow, progressive, and an enormous size may be attained. In some

cases they grow considerable, then cease, and often disappear; in other cases, after growing to a certain size, they remain stationary and breasts disappear. There is never pain nor lymphatic enlargement.

Symptoms.—The tumor begins as a small, movable growth—seems to be isolated from gland tissue—never painful; nor does it involve the skin nor cause enlargement of the lymphatics of the axillary space. As it grows breast may atrophy. Rate of growth depends on irritation. If it becomes very large the coverings might ulcerate, and the tumor protrude through.

Treatment.—The application of the ozonized clay during the day, and the belladonna ointment during the night, with a general vegetable alterative and tonic course, is the best treatment.

(6.) **Mucous Cysts** consist of dilated and expanded gland ducts filled with mucus and epithelium. There may be one, or several cysts, in one or both breasts. They seldom grow larger than a hazel-nut. Most common after change of life. They give rise to no pain or inconvenience, but when detected should be removed by a simple incision. If allowed to remain they simply become the seat of cancerous deposits.

(7.) **Cancerous Tumors.**—The aggregation of cancer-germs into the breast may be in the form of scirrhus, medullary or colloid—scirrhus or chronic form being the most common, and the age of frequent development between forty and fifty. The tendency of this germ, if not properly cared for, is to increase by cell-growth and form fresh deposits from the blood. After having used up in its own nutrition and growth the breast, and usurped its structure, it has a tendency to ulcerate, give rise to great pain, and engorgement of the lymphatics in axilla and below the collar-bone.

Pain is characteristic of this malignant tumor; it need not be a constant pain. If there are simply a few germs the pain may resemble a needle darting through it; if there are a large colony of germs, like a knife and frequent. Besides the enlargement of lymphatics, the retraction of the nipple, protrusion of the tumor, and its fixation to the walls of the chest are indubitable signs. There may also be a discharge from the nipple, but that simply tells us that the glandular structure is involved, and one or more ducts leading to the secreting lobules are permeable. Besides, there are likely to be the cancerous cachexia. The duration of scirrhus is less than four years from commencement; of medullary, less than eighteen months. Scirrhus is hard, lobulated; medullary soft, doughy; in the former pain much less than in the latter.

Treatment.—If the lymphatics in the armpit are no larger than an ordinary kidney-bean, the best of hopes may be enter-

tained of a cure ; if larger, all that may be possible is to retard, or keep disease stationary for a number of years. After putting patient upon the ozonized phytolacca for a few weeks the plan of proceeding with the tumor can be decided on. If it begins to grow less under that remedy, and pain leaves, then there is usually no need to remove it. The ozonized clay can be applied occasionally, and after its removal belladonna. The appetite, the bowels, skin, kidneys being attended to, and the best of diet given, so as to make new blood rapidly, and slowly and progressively the cancer disappears. In that case keep up the phytolacca for six months after its disappearance. If it is decided to remove it then cover the breast with adhesive plaster, all but what will be a sufficient opening for the cancer to drop out. Over this window apply the paste chloride of chromium ozonized. Apply about half an inch thick ; keep it on till it dries, then apply again in the same manner, and again, say every day. This remedy causes no pain, penetrates down to the deepest root of the cancer, unites with it, and destroys every vestige of it. It becomes a dead mass ; then remove the chromium plasters, and poultice the breast every three hours with linseed poultices, and continue until it drops out. In some cases this may be a few days, weeks, or even longer. If every root be not destroyed a little of the paste can be applied. When it drops out dress with ozone ointment ; don't be in a great hurry to heal it up. At the same time push the internal remedy, and prolong sleep to ten or twelve hours daily, with conium and hyoscyamus, and see to the food—beef, mutton, poultry, eggs, white-fish, oatmeal porridge and cream, fruits, vegetables.

During the healing process the sore or cavity should be washed out with a solution of sulphate of manganese, or permanganate of potass, and kept well strapped with adhesive strips and supports. Either flannel or silk is best next the gland. This is the most successful, least painful, and saves more lives than all other forms of treatment. The living monuments of its great efficacy are scattered over the entire union, in a perfect recovery from this terribly fatal disease.

The very nature of cancer, being a disease-germ from and in the human blood, precludes all hope of cure from an operation with the knife, so much so, that all scientific surgeons have now discarded that. It can be removed as freely, completely, and successfully with the plaster. Most successful before the adjacent lymphatics become implicated or involved.

The mode of applying the plaster involves no new principle, no complex procedure. The absence of palpable enlargement of the lymphatics affords us the best hopes of a cure.

DISEASES OF THE EYE AND EAR.

VARIATIONS IN SIGHT.

Although the Caucasian was the last of the races created, he is the most perfect in Divine mechanism—his brains the richest in cineritious matter and in convolutions of thought. Although he possesses this superiority and is the only civilizing race—the race that possesses the attributes of invention and progress in sciences and arts, still, withal, his senses are far inferior to woman's, and to other lower, inferior and distinct races. The senses of smell, hearing and seeing are more acute and powerful in the Negro, Indo-American, Mongolian, etc., than in the white race.

Vision, or sight, is performed by the brain through a perfect optical apparatus, the eye, by or through which the brain looks at the exterior world. There are variations in vision. In order to arrive at a proper conclusion as to a deviation, a normal standard must first be laid down.

(1.) **Emmetropia.** or normal vision, or sightedness, in a Caucasian male between fifteen and forty-five years of age, with a healthy brain and eye, he can distinguish an object the six hundredth part of an inch in size, at a distance of six inches.

The power of vision is often injured by the use of eye-glasses. Conservative spectacles of blue and other colors, worn at sea-shore in summer months are destructive to vision; always injure more or less, as the retina is only benefited by a white light.

(2.) **Myopia.**—Short or near-sightedness, may be said to exist when the distance at which ordinary type can be read is less than twelve inches, and when near objects can be seen distinctly. Bright light aggravates the condition.

Myopia may be hereditary, transmitted by either or both parents to the child or children, and in such cases there is usually too great a convexity of the cornea, or crystalline lens, or both. It may also be due to lengthening of the eyeball; to an undue density of its refractive media. The rays of light from objects at usual distance are brought to a focus before reaching the retina, instead of being concentrated upon it. Overcrowding in public schools, with a low grade of purulent ophthalmia produces grave changes on the eye, and causes a

large number of children to become myopic. The percentage of myopia in our large schools is immense compared with small classes in distinct buildings far apart. It is not due to want of light or ventilation, but the mass of children crowded together, and perhaps, aided by an insufficient amount of brain-food to the child, and, in some cases, by the rather great and ever-increasing demands upon the little one's industry at home; forcing prolonged labor on their eyes during the evening hours, frequently by artificial light. We must never underrate the insanitary condition of overcrowding, while the children's eyes should be spared the fatigue of evening work. We cannot ignore the fact that our large schools are manufacturing a race of short-sighted people far greater in number than what is inherited or produced by other causes. It is often a fashionable complaint, affecting those who read much and think little; but ultimately it becomes confirmed. It may not increase with age. The contraction of the iris in the nervous temperament often gives rise to it. Indulging children by permitting a light in the room while asleep deprives the eye of its natural rest in darkness and is productive of myopia. Overwork, strain, looking at small objects, reading by gas-light, oil-lamps, etc., are causes. Snow blindness is due to excessive contraction of the pupil.

(3.) **Presbyopia.**—Long-sightedness; an alteration in the refractive power of eyes, producing presbyopia. It is an indication of atrophy of brain, or of approaching old age; seldom begins before forty-five years of age; often a precursor of glaucoma. Vision is imperfect for near objects; distant ones seen clearly. There is always associated with it more or less weakness of sight.

(4.) **Asthenopia.**—Weak-sightedness, from fatigue of muscular system of accommodation. Eyes weak, but appear normal; inability to read or write for any length of time; letters become indistinct and run into each other; eyes weak or get very tired. There is *muscæ volitantes*, headache. If unrelieved, eyes will become useless for work. Rest, sea air, food, tonics, a perfect suspension of work.

(5.) **Astigmatism.**—An inequality of the refractive power of the several meridians of the eye. Convexity of the cornea from above downwards, or from side to side, a common cause. It is often considerable, and interferes with the sharpness of sight.

(6.) **Color-Blindness.**—An inability to discriminate between certain colors, is a condition that seems to be coming more common, and is of especial interest to the general public as regards an avoidance of accident by excluding affected persons from the offices of engine-drivers, signalmen, pilots; and it is fortunate the class of individuals affected rarely seek such employment. Quakers are much affected with it, so are Jews. In the

former it is brought about by a marked characteristic, a general coalescence of the typical fissures of the brain, induced by monotony, sameness, isolation; a condition often present in insanity, epilepsy and other low types of the human brain; in the latter class relationship or consanguinity, wipes out the mental characteristics and obliterates the convolutions. This in-and-in breeding, as well as solitariness predisposes to suicidal mania and causes color blindness.

The average per cent. of color-blindness among any given people will depend upon the preponderance among them of Friends and Jews, or persons who possess the same characteristics. It always diminishes as we ascend the social or educational scale. Among deaf mutes the percentage is even greater than the two classes mentioned. Intermarriage is not only a great factor, but the same law extends to temperment and races. Intermarriage not only creates the defect, but aggravates it, causing the most intractable form, which is red blindness. There is also to be found an unusually high average of color defects among the children of either fathers or mothers who work among colors. Trades requiring great concentration of sight, as engraving and watchmaking, seem to bring it about. Women are equally affected with men. The average percentage in people of low civilization or culture is great; among deaf mutes, ten per cent., and among Friends and Jews, about six per cent.

Color-blindness is a defect which is quite compatible with perfect vision in other respects. Color-blindness is found to exist in three forms:

(1.) Inability to distinguish any color, properly so called—black or white, or light and shade.

(2.) Inability to distinguish between nicer shades of more composite colors, as brown, gray, and neutral tints.

(3.) Inability to distinguish between primary colors—red, blue, yellow; or secondary and tertiary colors, as green, purple, orange.

In the latter form there is a defective appreciation of all colors. Little good results from any treatment; and as there is about one per cent. of the entire population affected, care should be exercised by railroad officials, pilot boards, etc., that no affected person be employed, so as to avoid serious accidents.

(7.) Hypermetropia.—Oversight; a condition in which the refractive power of the eye is too low, or the optic axis too short; consequently when the eye is in a state of rest, parallel rays are not united upon the retina, but behind it, and only convergent rays are brought to a focus upon the latter. Distant objects are not seen clearly; eyes look smaller and flatter than in health; very apt to be headache, or dull pain in eyes, with heat and

fullness; in reading, words run into each other. It causes weak sight, squinting, and blindness.

(8.) Amblyopia.—Weakness of sight from disease of brain, optic nerve, or of retinal expansion of optic nerve; often caused by the use of drugs. Women, in order to impart an unusual brilliancy to eyes, take morphia and other drugs, which often cause this defect. It is also brought about by chloral, which exhausts the ophthalmic tract. There is a form of this, which is very common, called central amblyopia, in which direct vision is alone impaired, whilst that of the peripheral portion of the retina is unaffected, or but slightly less acute than normal. This kind or group constitutes a class of cases, which, from their frequency and rapid recovery, when the cause is removed, are highly interesting; they rarely terminate in total blindness. Central amblyopia is most invariably due to tobacco, and in more rare cases, to alcohol, chloral, morphia. The deleterious action of tobacco upon the base of brain and on the optic nerve has long been known in causing paralysis, not only impairing vision, but causing a vacancy, dullness, restlessness, and wildness of the eye.

Besides tobacco, the very general use of lead, nitrate of silver, and pyrogallie acid, in hair dyes, lotions for hair; bismuth for cosmetics, and other trash in blooms of youth, etc., all gravitate to the base of brain, and cause this form of imperfect vision.

(9.) Diplopia.—Double vision arises from some derangement of the visual axis by paralysis or spasm of the muscles of the eyeball, or in some irregularity of density, or curvature of dioptric media, or some disease of the optic nerve or brain. It is often caused by the prolonged and indiscriminate use of gelsemium in spermatorrhœa.

(10.) Hemioptia.—Faulty vision; half an object only seen. It may be temporary or permanent.

(11.) Hemeralopia.—Night-blindness or day-vision: that condition in which vision is only good or distinct during the daylight. Travellers, soldiers, sailors, in the tropics, by long exposure to brilliant or intense sunlight, or to the reflection of the sun's rays on white sand in the desert, exhaust the sensibility of the retina, so that its delicate structure ceases to be affected by twilight. It may be a symptom of scurvy, or caused by action of moon. The affected individual is incapacitated for all duty after sunset. This excessive weakness of the retina, which causes night-blindness, is also the result of sexual excesses and masturbation; then organic changes in brain and optic nerve are to be feared, and total blindness follows, which is irremediable.

(12.) Nyctalopia.—That condition in which vision is most powerful or acute during twilight.

(13.) Photophobia.—Intolerance of light is a constant symp-

tom in all inflammatory affections of the eye and brain. Darkness; fomentations, stimulants to nape of neck, origin of optic, with active bowels and skin, are always salutary.

(14.) **Nydriasis.**—A dilated condition of pupil, present in bloodless states of brain, gives rise to imperfect vision. It may also be due to paralysis, induced by belladonna, use of tobacco, and other acro-narcotics, which cause the iris to lose its power and remain dilated.

(15.) **Myosis.**—A contracted pupil, present in congestion of brain; seldom due to drugs, unless chloral hydrate or calabar bean be given. Watchmakers, engravers, who look at minute objects, are affected. It gives rise to great obscurity of vision in a weak light.

(16.) **Muscae Volitantes.**—When the vital integrity of the brain is lowered or depressed, and either anæmia or hyperæmia is present, the nerve filaments that supply the aqueous humor and vessels of choroid are relaxed. If the debility be great, vessels take on varicosity; and when the brain looks through the eye at the external world, it sees the varicose vessels, tortuous, and anastomosing in every conceivable form, and it then compares them with objects seen or described in the external world; if depression be not very great they will be compared to small objects, as flies, specks, spots; if depression be great, the vessels are greatly engorged; then the patient will compare them to large objects, as men, devils; they are real, no hallucination, as the patient sees them in his own eye. It indicates brain exhaustion, in a mild or aggravated form.

(17.) **Protuberant Eyeballs,** so large that the eyelids cannot close on them, may be due to wasting, to anæmia. The reflex action of masturbation, in both sexes, has a remarkable effect in its production; more common in ladies than in men. It is a symptom of phthisis in all its varied forms.

DISEASES OF THE EYELIDS.

(1.) **Styes.**—Hordeolum, or styte, so called from its fancied resemblance to a grain of barley, is identical in its origin, symptoms, and the bacterial nature of its contents, as a boil; mal-assimilation being the cause, and the degraded living matter, or micro-organism present being bacteria.

Treatment.—Same as for boils, by an emetic; rouse up liver with podophyllin pill; an alcoholic vapor bath. If the effused lymph and bacteria in follicle have not broke, try painting it with tincture of iodine and iodide of potass, or extract of belladonna; internally, antiseptics. (See *Boils*.)

(2.) **Ophthalmia Tarsi.**—Inflammation of the roots of the eyelashes, meibomian glands, and edges of the lids, with effusion of serum, lymph, pus, which forms minute pustules at the roots of

the eyelashes; those pustules, coalescing and breaking, form crusts, scabs, matting the hairs and uniting the eyelashes during sleep.

Causes.—Impaired health, tubercular diathesis, perverted state of nutrition, or mal-assimilation, give rise to the degradation of bioplasm, micro-organism, bacteria; hence the disease is contagious and infectious, especially by towels, or other close contact. In some cases the cryptogam or its spores may lodge in the part, and thus give rise to itching and irritation.

Symptoms.—Usually a chronic affection; but in some cases considerable pain and soreness, itching, gluing of the lids; destruction of the matrix of the hairs, or tarsi, so that the eyelashes are destroyed, leaving a blending of the skin and conjunctiva into a red, shining cicatrix; when severe or extensive, causes obliteration of the puncta lachrymalis; then secretion of tears runs over on cheek.

Treatment.—The condition of stomach and bowels merits close attention: Emetics; occasionally remedies to stimulate liver and skin; flannel clothing; best of diet, animal food, milk, eggs; change of air and scene; a general alterative course, iodide of potass in compound extract of phytolacca, saxifraga, or stil-lingia; glycerite of ozone; tonics before meals, as cinchona and mineral acids, sulphate of quinine, and aromatic sulphuric acid.

Locally, wash eyes several times daily, and at night smear edges of lids freely with vaseline or ozone ointment. Painting edges of lids with aromatic sulphuric acid operates like a charm; it may be either diluted or applied in full strength. In all cases push best of nourishment; alteratives and tonics; and use only antiseptic drugs about eye; poultices to be avoided; better to soften and remove crusts with hot fomentations, or warm milk, which is a powerful attractor of germs.

(3.) **Trichiasis.**—An irregular direction of one or more of the eyelashes, when the cilia or hairs present their points towards the globe of the eye, causing chronic inflammation of the conjunctiva.

Treatment.—Misdirected hairs to be extracted singly with forceps; the hair follicle to be destroyed by dabbing with alcohol, or touching with stick of nitrate of silver.

(4.) **Ectropion.**—Eversion of the eyelid may be due to long-continued ophthalmia, or to contraction of one or more cicatrices on the cheek, or to dropping of the lower lid from paralysis; more common in lower lid than in the upper.

(5.) **Entropion.**—An inversion of the margin of the eyelids. It may result from a cicatrix in conjunctiva, neglected purulent ophthalmia. If the eyelashes are in the way they should be removed. Cases of ectropion and entropion can often be managed without operation, by the judicious application of collodion

and tannic acid; by the application of pulverized alum and white of egg.

(6.) **Epiphora.**—A superabundant secretion of tears, so that they run over on the cheek. Very common in tubercular children, and in adults with a highly developed sympathetic. It may also be due to irritation, foreign bodies. It has no relation to closure of the puncta lachrymalis. Alteratives and tonics.

(7.) **Ptoſis.**—A dropping of the upper lid, or an inability to lift it, owing to palsy of the third nerve. It is a very common symptom in apoplexy and cerebral disease; in rare cases, due to debility.

OPHTHALMIA.

Inflammation of the mucous membrane of the eyelids and of the eye is one of the most common of all forms of disease of the eye. There are several varieties. The cause in all cases is irritation from cold, light; discharges containing micro-organisms. They are all contagious or infectious, and have the following symptoms in common: intolerance of light; a sensation of sand in the eye; a muco-purulent discharge, loaded with bacteria and other germs.

(1.) **Infantile Ophthalmia.**—So called because it takes place in infants from two to four days after birth, beginning at edges of the lids and proceeding over entire conjunctiva.

Causes.—The child, in its passage from the uterus, may have its eyes inoculated with leucorrhœal or gonorrhœal matter, or other discharge from the mother's genital organs; or, by inadvertence of nurse, some of the sebaceous secretion on the body of the child may have got into the eyes; or irritating soap, or cold, or light.

Symptoms.—A spasmodic closure of lids; lashes stick together; hard crusts form at the edge of lids, which are red; the redness and swelling increase, lids more swollen; the conjunctival sac becomes filled with a transparent, yellowish-colored serum and mucus; engorgement continues; then pus, or thick muco-purulent matter makes its appearance; the tumefaction of the conjunctiva is so great that the lids will scarcely close, and the discharge so copious that it runs down the cheek of the infant; the cornea of the eye looks depressed, or retracted, or hid; the surrounding conjunctiva fleshy and elevated, owing to its infiltration with red blood, serum, etc. This swollen condition of the conjunctiva, looking elevated, while the cornea looks depressed, is called *chemosis*. As the discharge is so loaded with bacteria and other diseased germs, if great care is not observed it may contaminate the other eye, or that of nurse or mother. If not actively seen to, the symptoms will increase in severity. The mucous membrane of the conjunctiva possesses a lamellated

epithelium, and has the faculty, when so inoculated, of a proliferation of its epithelium, which is transformed into pus cells, which process of shedding gives rise to an enormous discharge, and a continual thinning or peeling of the conjunctiva of the ball of the eye, which becomes soft, and liquefies, and ulcerates, and contents of eye are liable to escape. Perforation is very liable to happen if allowed to run two or three weeks, especially if the lids are swollen and tight on ball. Should the eye escape disorganization, there is often opacity of the cornea left behind, or an opacity of lens, or some defect in vision. The greatest care is necessary in opening the eye; it must be done with great caution and care.

Treatment.—Bowels to be opened freely with cascara or oil; fever to be controlled with aconite and sweet spirits of nitre; bathing night and morning; room darkened; one-eighth or one fourth of a grain of quinine taken thrice daily, in syrup, as this is the great tonic to the eye. Locally, the child upon your lap, wash the outside of eye carefully with the following mixture: ten grains of borax; one ounce of rose-water; six ounces of plain water. Mix, and warm sufficiently to wash out the eye carefully. After washing out, drop in a few drops of a solution atropia: Sulphate of atropia, one grain; water, two drachms; glycerine, one drachm; mix. Three times a day. This atropine has an antiphlogistic effect on the inflamed surface, dilates the pupil and relieves the tension of the eyeball. Never use cold applications nor ointments, unless it be vaseline or ozone ointment, to keep lashes from sticking together. Warm sweet milk is the best agent for washing or fomenting. In more aggravated cases, a lotion of aromatic sulphuric acid instead of the borax. The other eye to be carefully guarded.

(2.) **Common Acute Ophthalmia.**—Or catarrhal ophthalmia is a mild form of inflammation of the conjunctiva and meibomian glands. Its common causes are cold, wet, sudden changes of temperature, sand, foreign bodies, etc. Contagious and infectious.

Symptoms.—Intolerance of light, pain in the eye, a sense of soreness or scalding, stiffness, dryness, a feeling of roughness about the eye, as if there was sand in the eye. This sensation is caused by the congested condition of the vessels of the lid and globe. They are tortuous, swollen; red blood circulating where only white blood was wont to circulate; roughened, and by rubbing over each other, carry this sensation to the mind. These vessels can be seen; of a light scarlet color and irregularly arranged, and can even be moved by the finger. In bad cases general congestion. The discharge is puriform at first, and then becomes muco-purulent. In some cases headache, rigors, fever.

Treatment.—Active treatment same as is laid down under purulent ophthalmia.

(3.) **Purulent Ophthalmia.**—A severe and dangerous form of ophthalmia; more contagious and infectious than the former.

Causes.—Overcrowding of large bodies of men, women and children together in shops, jails, cities schools and other institutions. The miasma of each other's bodies is supposed to degrade the normal bioplasm of the conjunctiva into the micro-organism, the bacteria; hence a virulent form of disease. Wherever and whenever the condition of overcrowding exists, this diseased germ appears. The vitality of this bioplasm is great, and still greater when growing and multiplying in the mucous membrane of the eye. The living particles are so vital that they can be preserved in clothes for years; can be carried great distances in the air. A school, a refuge, jail, or ship, once infected with such particles, months, and even years, may be necessary before the disease-producing germs can be got rid of.

Symptoms.—All the symptoms are well defined: the soreness or redness; the intolerance of light; the sensation of sand; the copious or profuse muco-purulent discharge, with other severe symptoms, intense, with prostration, rigors, and violent fever; the pain in head and eye agonizing; and the amount of discharge of thick, yellow, purulent matter immense. The conjunctiva of both lids and globes swell, so that it is with difficulty that the cornea and iris can be seen (*chemosis*); and the discharge flows on cheek. If disease does not yield to proper treatment, the inflammation will increase, spread to the cornea and deeper structures of the eye. When the internal textures become involved, constitutional symptoms are still more aggravated; extensive sloughing takes place, and the sight, and often the eye, is lost. Sometimes one eye, in other cases two are affected simultaneously.

Treatment.—Patient to be kept in bed, in a well-ventilated, dark room; antiseptics in apartment; open bowels with podophyllin pill and enemata; bathe the surface thrice daily; veratrum viride, aconite, and sweet spirits of nitre, so as to keep pulse at 70; hypodermic injections of pilocarpine, to keep up diaphoresis; quinine, in doses ranging from one to five grains, every four hours; and solution of sulphate of morphia, at bedtime, sufficient for sleep; mustard to nape of neck, right over medulla as long as can be borne, followed by croton oil; then hot poultices every three hours, and, if necessary, repeat croton oil daily, so as to establish free suppuration at the nape of the neck—a space of four or five inches is sufficient. To the eye, wash out carefully with some antiseptic lotion, as borax, or permanganate of potassa, or aromatic sulphuric acid, or boro-glyceride; use fomentations of the same; inject the corners

of lids, and cleanse out; after it is performed drop in solution of atropia; this should be done every two hours; warm fomentations of the above to the eye at all times. If case yields, hold on to the above plan for a few days, and if all goes well, iodide of potass in vegetable alteratives, with tonics, holding the patient chiefly on cinchona, glycerite of ozone, and kephaline. All through the case the diet to be most generous; and if we bear in mind that we have a terribly destructive living poison to deal with, it will be the guide for hygiene. After patient is around, change of air, and irritating plaster to nape of neck for three months.

In our present school system in our large cities, we find an immense amount of this type of ophthalmia in a low, chronic form, due to the congregating of large bodies of children together. Indeed, in all large schools it rages in a mild form; but even in this type it is sadly productive of causing impaired vision in city children, so much so that our large schools will be abolished as soon as fathers and mothers can appreciate the difficulty.

In such cases keep child at home, in a partially darkened room; administer cinchona; give good food; daily bathing, and use vaseline to the eyes morning and night.

(4.) Gonorrhœal Ophthalmia.—Persons suffering from gonorrhœa sometimes inoculate their conjunctiva, by touching it with their fingers, or with a dirty towel, used by themselves or a fellow-boarder who has a running. Most frequently right eye that is affected. Women are rarely sufferers from it.

Symptoms are the same as the purulent, but more contagious and infectious, as the discharge contains a venereal bacteria.

Treatment must be very prompt; same as the purulent; increase dose of quinia, and nourish still better; no good in any other treatment; leeching is of no utility, being simply a zoological humbug. The great point is the destruction of the germs, and preservation of the eye. The treatment laid down is the only one that can save the eye from disorganization.

(5.) Tubercular Ophthalmia.—An affection met with among children, from period of dentition up to about the tenth year of age. The tubercular cachexia is usually present in a high degree; the skin white and thin; muscles soft and flabby; hair as dry as tow; torpidity of all the great secreting organs.

Symptoms.—There is *no* soreness or rawness, *no* sensation of sand in the eye, *no* muco-purulent discharge; but the intolerance of light is very great, with spasmodic contraction of the lids; there is a copious lachrymal secretion; irritability of the nasal and buccal mucous membrane; fleshy redness is absent, but there is a very slight conjunctival and sclerotic redness, with formation of pustules or ulcers on cornea. Both eyes are usually affected. Hot tears profusely flowing over cheek cause

an excoriation. There are often the thick lips, long eyebrows and eyelashes, eruption behind the ears, with disordered intestinal secretion, so often present in tuberculæ.

Treatment.—Eyes must be protected with a green shade; and when not exercising for health in the open air, to lie down in a well-ventilated room, and a lotion or wash of common salt and water kept applied. The strength of this wash will depend on the age; it must be strong enough so as to barely feel it, not to cause the least smarting. It is the best of all local applications. This wash is to be kept on as much as possible, and changed every little while, as it becomes dry; and cloths either washed or destroyed; never allow it to become dry; an emetic twice a week for six weeks, of wine of lobelia; encourage child to drink freely some tepid water with bicarbonate of potassa, and then follow with half teaspoonfulls of the wine every five minutes till free vomiting takes place. The effect of this emetic on the eye is really wonderful; it acts like a charm; benefits at once, and the whole aspect of the disease changes for the better. Besides, in that class of children the mucous coat of the stomach is relaxed, and there is a large accumulation of mucus in that viscous, which, when thrown off, lets the natural appetite for food return, and more perfect digestion takes place. Bowels to be regulated with cascara; bathing morning and night; flannel clothing; patient placed upon a general course of alteratives and tonics—iodide of potass, and preparations of cinchona.

The diet to be most nourishing, consisting of abundance of animal food, beef, mutton, poultry, eggs, milk, cream, oatmeal porridge and cream, boiled white-fish.

(6.) **Granular Ophthalmia.**—May be a result of either of the preceding forms, or may come on of itself from the same causes, and consists in a low form of irritation of the conjunctiva, with effusion of lymph, which forms nodules or granules, rendering the conjunctiva uneven and granular. These granulations look like grains of sago, and consist of inflamed mucous follicles and papillæ; they cause a good deal of irritation, and opacity of the cornea is the result.

Treatment.—Alteratives and tonics, iodide of potass and quinine being the two best; the eye, or rather the granulations, to be brushed over three times a week, if irritation is produced, with a solution of iodide of potass, from five to twenty grains to the ounce of water, or aromatic sulphuric acid, pure or diluted, according to age of patient; bowels regulated; daily bathing; flannel clothing; best of nourishment. If case does not yield promptly to above means, with rest to the eye and darkness, apply two small blisters one inch square on each on spinal column at nape of neck for six hours every other day, the succeeding blisters to follow on the top of the former ones.

(7.) **Rheumatic Ophthalmia.**—The coat or covering of the eye below the mucous membrane is a white, fibrous tissue, and if it is depressed by cold, wet, or violence, and there is the presence of lactic acid in the blood (rheumatism), it becomes specially affected or irritated with the acid, which has such a strong affinity for it.

Symptoms.—Severe, sharp, lancinating pain in the eye and side of head. It is so agonizing that it depresses nerve centres, and there is more or less fever; the white of the eye looks a pale red, its vessels being arranged in a radiated or zonular form, and beneath the conjunctiva; intolerance of light; dimness of vision, from haziness of cornea and contraction of pupil; the discharge from the eye is watery or serous; there is *no* sensation of sand, *no* fleshy condition of conjunctiva, *no* muco-purulent discharge, *no* soreness or rawness; but a sharp, lancinating pain, always worse at night.

Treatment.—General treatment for rheumatism: atropia solution dropped in eye thrice daily; dry heat to eye and side of head; never wet applications of any kind; blisters for six hours to nape of neck, repeated every other day, followed by hot poultices; pain to be relieved, at all hazards, with morphia or opium; control fever; aconite and veratrum; open bowels; bathe surface; quinine and salicylate of soda every three hours, with general alteratives and tonics; same remedies as for rheumatism; saccharated sulphur after meals. If symptoms do not ameliorate very speedily, use a two per cent. solution, hypodermically, of the nitrate of pilocarpine, which exerts a most wonderful influence in this affection. The pilocarpine is most effectual in the most intractable cases. Still hold on to aconite, colchicum, and cinchona in addition.

(8.) **Catarrhal Rheumatic Ophthalmia.**—This is a combined affection, consisting of both inflammation of the mucous membrane and also of the sclerotic coat. Usually present in greatly broken down subjects.

Symptoms.—Pain; both sore, raw, lancinating; also sensation of sand; intolerance of light; fleshy condition of conjunctiva, or chemosis; often leads to opacities of cornea, ulceration, onyx, suppuration, etc.

Treat with alteratives and tonics; build up in every possible manner; drop atropia in eye; relieve pain with morphia; stimulate optic nerve with quinine; give best of food, and observe great cleanliness.

(9.) **Sympathetic Ophthalmia.**—This is induced in one eye by the irritation set up in the other, either as the result of an ophthalmia, or some degenerative change going on in a diseased or damaged eye, or lost eye.

The disease usually commences with intolerance of light, then

pain, impairment of vision. The inflammation is of a plastic form, which is superficial, and runs to deeper-seated parts.

The great point in the treatment of such cases is alleviation of pain and toning up the eye with preparations of cinchona.

(10.) **Pterygion.**—As a final result of repeated irritations, or inflammation of the conjunctiva, the blood vessels of the inner or outer corner, or canthus of the eye become relaxed, congested, and become varicose, forming a triangular, fleshy excrescence on the conjunctiva. Vessels can be hooked up, and snipped off, but a better plan is to touch or brush over the dilated vessels with aromatic sulphuric acid, once, twice, or more times a week; and if that fails, a solution of nitrate of silver, forty grains to ounce.

DISEASES OF CORNEA.

That portion of the covering of the eyeball next to the conjunctiva is called the cornea, from its fancied resemblance to a horn; transparent and nearly circular, forming the anterior sixth of the globe. It is a structure of extremely low organization; difficult to induce a condition of partial death in it, by either violence, contiguous inflammation, unless the vital forces are very low, shattered in the extreme, or some cachexia, as tubercule, syphilis, gout, etc., be present.

(1.) **Acute Corneitis.**—May be the result of injuries, cold, wet, exposure in depraved subjects, or inflammation from other parts. When it takes place, it renders the polished and transparent surface of the cornea hazy, dim, and rough, or to look like ground glass.

Symptoms.—Dull, deep-seated pain in the eye; intolerance of light; abundant secretion of tears; no muco-purulent discharge of any moment; a concentric plexus of minute vessels can be seen passing from edge of cornea; a zone of pink vessels in adjacent sclerotic; haziness of cornea, with opacity. Patient affected very tuberculous; disease runs a very chronic course, lasting for months, leaving cornea permanently cloudy; sometimes ends in suppuration, and softening is liable to take place, with perforating ulcer into cornea. One or both eyes may be affected.

Treatment.—If any fever, aconite and veratrum; active condition of liver and intestinal secretions; blisters to nape of neck every other day for six hours; alteratives—iodide in compound syrup of phytolacca, stillingia, iodide of lime; and tonics, as preparations of cinchona, quinine, glycerite of ozone, and keph-aline; warm fomentations to eyes; very best of food, and everything calculated to build up vital force.

(2.) **Gouty, Syphilitic Keratitis.**—Chronic interstitial kera-

titis may depend on gout, syphilis, mercury. Affects specially young persons and females. It is very chronic.

Symptoms.—No pain; a diffused haziness, beginning at centre of one cornea; tissue affected resembles ground glass; no tending to ulceration; after a few weeks other cornea becomes affected. Subjects of this disease afford strong indications of either hereditary gout, syphilis, or mercury.

Treatment.—Same as the above: alteratives and tonics, and best of support.

(3.) Opacity of the Cornea.—Invariably a result of inflammation, and effusion of lymph into the cornea, or between it and the conjunctiva.

When the effused lymph is light and cloudy it is called *nebula*; a limited white patch, such as results from a cicatrix, is called *albugo*; and if it is very dense, of the consistency of ivory, *leucoma*. Absorption may take place under alteratives and tonics, with local use of brushing on iodide of potass in solution; or aromatic sulphuric acid, or alum and white of egg emulsion to eye, in nebula and albugo; but they are useless in leucoma.

(4.) Ulcers of Cornea.—If the person affected with chronic keratitis, or effusion of lymph nebula, albugo or leucoma, be subjected to depressing influences, as sickness, bad or insufficient food, tuberculae, syphilis, or other lowering disease, the effused lymph may break down, and an ulcer form, which may lead to perforation of the cornea and escape of the aqueous humor. Improvement of general health is the best preventive as well as cure.

(5.) Conical Cornea.—A somewhat rare malformation. Cornea found exceeding convex, giving a peculiar sparkling, or brilliant appearance to the eyes. Both eyes are usually affected, but often unequally. Vision may be indistinct; cause is unknown. It seems to consist in a thinning of the cornea. No treatment of any use.

(6.) Arcus Senilis.—A gradually increasing opacity of the circumference of the cornea, resembling the white portion at bottom of nail of thumb. It is indicative of fatty heart, liver, and kidneys.

DISEASES OF THE IRIS.

The iris, suspended like a curtain, with a circular opening in its centre, lies between the cornea and crystalline lens; and bathed on both sides by aqueous humor, serves to regulate the amount of light that is admitted into the retina. It divides the cavity containing the aqueous humor into anterior and posterior chambers. The iris is composed of delicate bundles of fibrous tissue, or circular and radiating, involuntary, mus-

cular fibres, and of pigment cells. In some cases it is absent, or exists in a rudimentary form. In the Albino, the iris is of a rose-color, while the pupils present a deep red appearance, owing to absence of opaque pigment. In coloboma, the two halves of the iris have failed to unite, in consequence of an arrest of development, which gives the pupil an elongated form. Inflammation of the iris exists in a variety of forms, and is associated or dependent on low states of vital power. The different forms of iritis are divided into (1.) hyperæmia of iris; (2.) plastic iritis; (3.) serous iritis; (4.) parenchymatous iritis; (5.) syphilitic iritis.

Causes.—Syphilis, gout, tuberculæ, mercury, are the primeval causes but exposure to sudden changes of temperature, cold draughts, or severe drenching, together with grief, anxiety, sleeplessness, may induce it if the predisposition exists in a depraved constitution.

Symptoms.—There is lancinating pain, situated at first, in the interior of the eyeball; then it extends to the forehead, temple, and gums, and other parts of the fifth nerve. Throbbing is an unfavorable symptom. Pain increases towards evening and lasts till morning, when it has assumed a dull aching in the eyeball, and occasionally it is of a lancinating character. The nocturnal attacks of pain are very apt to cause fever and impaired appetite. Intolerance of light and lachrymation are rarely absent, but very slight. Now examine the eye. Direct your attention to its color; compare it with the healthy iris, and see if it has not undergone some change, for inflammation changes blue into greenish, brown into reddish, gray into greenish-yellow color; and if blood is effused into the anterior part of vitreous humor, it presents a green color. The arterial distribution accounts for those changes. There is also contraction, dryness, and irregularity of the pupil, dimness of vision, and sometimes total blindness.

The different forms depend upon the cause—the syphilitic form is the most common, and is usually associated with other symptoms. Its chief distinctive characteristic is that instead of the whole iris being studded over with excrescences, the inflammation is confined to one or two single spots, while the rest is normal. One-fourth, or one-half of the iris is changed in color, and swollen.

Treatment.—This embraces general principles: aconite for fever; morphia for pain; free action of bowels and skin; nourishing food, etc., etc.

Our effort must be directed to the eye to obviate the tendency to adhesions, or break them down; for this purpose, a solution of atropine breaks them up, if fresh, and puts the eye in a favorable condition toward resolution. The solution, in

cases of iritis, must be strong (six grains to the ounce), of which six or seven drops should be dropped into the eye three times a day. The eye to be kept closed, and eyelid and side of head painted with extract of belladonna; mustard, followed by hot poultices, to nape of neck.

A general course of alteratives and tonics, keeping in view that our two best are iodide of potass and sulphate of quinine. In addition to those two remedies, spirits of turpentine has a most marked action on the iris. It should only be given a few days at a time, but when administered should be given in fair doses; otherwise the treatment should be of the most constructive kind.

INFLAMMATION OF THE CHOROID.

The second, or vascular and pigmentary tunic, or covering of the eyeball, is rarely alone affected. If it should occur, inflammation spreads rapidly to other structures of the eye, causing disorganization.

Symptoms.—Intolerance of light; lachrymation, dimness of vision; supraorbital pain; engorgement, more or less, of conjunctiva; displacement of pupil; thinning of sclerotic; opacity of cornea, and enlargement of globe.

Treatment.—Same as for *Purulent Ophthalmia*.

RETINITIS.

Inflammation of the delicate net, or web, or membrane, called the retina, is rare, although it sympathizes with all the inflammatory conditions of the eye.

Causes.—Exposure to vivid light; such as the glare of snow, the white sand in tropical latitudes, large fires in foundries, and molten iron.

Symptoms.—Acute, deep-seated pain in the eyeballs, extending to temples and forehead; great intolerance of light; dimness of vision; frequent sensations of flashes of light; pupil contracted to a pin-point; iris loses its brilliancy and becomes motionless; some vascularity of sclerotic and conjunctival coats; constitutional disturbance; high fever, and delirium. If not carefully managed irreparable blindness liable to take place.

Treatment.—Perfect rest in a dark room; veratrum, aconite, for fever; morphia, or opium, or hyoscyamus for pain, which is to be relieved at all hazards; bowels to be freely opened; skin stimulated by frequent bathing and jaborandi; heat to feet—after mustard. To nape of neck, a four-inch square mustard plaster, followed with croton oil, then poultices, and latterly irritating plaster. To the eye, warm fomentations of opium

and tepid water, or infusion of poppies; alteratives and tonics, iodide potass and quinine.

As to the great value of stimulating applications to nape of neck, there can be no doubt in all eye affections. The optic nerve originates in the spinal cord and medulla, so that a good stimulant at root induces contractility, and normal vigor in the main trunk, and in its finer mechanism or reflexion in the optical instrument, the eye. In all eye diseases, aside from children, our motto is active stimulation to its origin.

CATARACT.

Consists of an opacity of the crystalline lens, or its capsule, or both; the effect being to intercept the rays of light on their way to the retina. Three forms are usually recognized according to situation of opacity, viz., lenticular, capsular, and capsulo-lenticular.

Causes.—The causes that give rise to opacity of the crystalline lens are either inflammation or degeneration of structure.

Symptoms.—Hard or lenticular cataract, or degeneration is the most common form met with in both sexes between fifty and seventy years of age. It causes objects to be seen as if through a thick cloud, or gauze—allows vision to be more clear when pupil is dilated with atropine, or by turning back to light. In advanced cases vision is reduced to distinguishing light from darkness. Commonly, one eye becomes affected first; then the other. Movement of iris natural; when pupil is dilated with atropia cataract can be distinctly seen with a glass of small focus; when cataract forms, lenticular opacities can be readily seen by ophthalmoscope.

Soft, or lenticular cataract of young people, may occur at any time of life. Congenital cataract is of this kind, due to disintegration of the whole substance of lens, which becomes opaque and swollen. Symptoms are the same as the hard, only vision more imperfect. This form often depends, or is caused, by a defect in the co-ordinating chemical centre in the brain; hence it is common in diabetes, and other diseases connected with that part of the brain.

Capsular cataract is more especially the result of chronic inflammation and effusion of lymph into its covering; opacity of a dead white color; it may affect any portion of capsule. Opacity of capsule always leads to opacity of lens, so that capsulo-lenticular cataract is very common.

Treatment.—Various efforts to promote absorption of cataract have been tried; the most successful has been in the early stage of hard and capsular cataract, chiefly with iodide of potass internally, and by bringing fumes of fluoric acid in contact with the eye until the eye manifests a slight congestion. It

should not be resorted to oftener than three times a week, and must be done very carefully, by putting the acid in a wide-mouthed, rubber bottle, guarding mouth, nostrils, and other eye, and holding it up to the affected eye, so that its fumes come in contact with the eye.

Common treatment is by operation, and one of three forms is usually selected, viz:—

(1.) Depression, displacement, or couching, by which the lens is pushed from its natural position, so as to allow rays to pass through pupil to retina.

(2.) Solution or absorption, in which the body of the lens is broken up at several sittings, so that it may be absorbed; only of utility in soft cataract.

(3.) Extraction, by which the lens is removed entire through an incision in cornea.

GLAUCOMA.

A form of blindness attended with disorganization of the various tissues of the eyeball, in which objects are surrounded by various colors, especially blue and green.

Causes.—It seems to depend upon extravasation of blood in retina and choroid; serous effusion between retina and choroid; retina raised in folds; and clots in vitreous humor, and changes in the optic nerve. What induces such changes, aside from shocks, jars, concussions, it is impossible to say.

Symptoms.—It may be acute or chronic, that is, it may come on suddenly, or more slowly; take months to do so. In both there is a rapid and irreparable loss of vision; begins with intense pain in the ball of eye during night, with throbbing in both eye and temple. Pain continues, and the eyes become congested. Iris of a dusky hue, and motionless: cornea becomes dim; pupil widely dilated, and sometimes of an oval shape; eyeball unusually hard. Everything looks as if surrounded with prismatic colors; often bright flashes of light before eyes; both eyes are affected.

In the chronic form the symptoms are the same; perhaps more congestion of iris and cornea, and more fullness of eyeball. Opacity of the lens is common in chronic form, as a result of deranged nutrition.

Treatment.—So far there is no known mode of treatment that avails. The improvement of general health and relief of pain is about all that can be done. Any depressing treatment, anything that weakens the patient, aggravates the trouble, so that the careful administration of sulphate of quinine, ozonized glycerite of kepheline, and other elements to invigorate the brain, should have a trial, with change of scene, and a sea voyage, etc., etc.

AMAUROSIS, OR BLINDNESS.

Partial or complete amaurosis, or loss of vision from some disease of the retina, optic nerve, or brain, the optical instrument, the eye, being in a normal or healthy condition. The causes that are likely to affect the brain, optic nerve, or retina are embraced under five distinct heads, viz., anæmia, hyperæmia, reflex, poisons, organic changes.

General Symptoms.—Partial or complete loss of vision, without effusion in the cornea or on lens, or any form of opacity. This impairment of vision naturally gives the gait and countenance a peculiar expression. He walks with an air of uncertainty; his eyes, instead of being directed to surrounding objects, have an unmeaning look, appear to be staring at nothing, or are in constant rapid motion. In partial amaurosis, movements of the iris sluggish, and pupil dilated; in total blindness, pupil greatly dilated, and iris immovable. When both eyes are affected, they are often unnaturally prominent, and of an unhealthy color, the sclerotic being often yellow and covered with varicose veins.

An examination of the eye with the ophthalmoscope usually reveals inflammation of the optic nerve; changes in the retina or brain. Those changes are variable, consisting chiefly of relaxation, effusion, thickening deposits, and extravasation. Another class seems to depend on atrophy, or wasting of the retina, optic nerve, or brain. This atrophy may follow neuritis, or exist without. When due to tobacco, this shrivelling up or whittling down of retina and optic nerve proceed to utter blindness without inflammation being present.

(1.) *Blindness due to anæmia* will exhibit an impairment of vision, with all the symptoms of a diminution of red corpuscles in the blood, as vertigo, ringing in ears, specks or spots before eyes, pale face, lip, tongue, murmurs in left carotid, and general debility. The causes that lead to this may be meagre, poor, or bad food, absence of sunlight, over-work, drugs, disease, fevers, long or excessive nursing, want of exercise, sexual excess.

Best cured by a removal of cause, building up blood with abundance of best of food, fresh air, exercise, and by the use of compound tincture cinchona and mineral acids, or pill quinine, iron, hydrastin, nux, sulphate quinine, and aromatic sulphuric acid.

(2.) *Blindness due to congestion or plethora*, or over-feeding and stimulation, with all the symptoms of that condition.

Best treated with removal of cause or causes, free purgation, heat to feet, blisters to nape of neck, followed by irritating plaster; alteratives, as iodide of potass in syrup of stillingia or phytolacca; and even here, cinchona or its alkaloids, because

we have no drug equal to it in restoring the integrity of the optic nerve

(3.) *Blindness may be due to reflex irritation*, as the irritation of teething, worms, ovary, uterus, pregnancy; but more especially self-pollution, or masturbation. This latter form usually common, as all the inmates of our prisons, refuges, asylums, boarding-schools, retreats, are addicted to this loathsome and degrading practice. Nearly all the young and middle-aged men and women to be seen on our streets with defective vision and glasses, have been inmates of some charitable college or institute, and exhausted, drained off, their nervo-vital fluid, and obliterated the finer cerebral convolutions of their brain, and are partially blind. The origin of the optic nerve being in the spinal cord, medulla, and brain, the reflex centre, or bulb, suffers intensely, and the whole process of growth is arrested, and the perpetrator a miserable victim of self-conceit, egotism, and puniness.

Cured upon general principles, by removing cause, and treat for masturbation and for the eye; stimulants to nape of neck, quinine, glycerite of ozone, kepheline, and other tonics.

(4.) *Blindness may be due to poisons*, as tobacco, chloral hydrate, opium, whisky, belladonna, conium, syphilis, mercury, and to the use of hair dyes and cosmetics, as the nitrate of silver, lead, bismuth, which acts very disastrously upon base of brain along the ophthalmic tract. Much of the defective vision to be seen is due to the use of those agents.

A discontinuance of the use of the poison, with a general alterative and tonic course, is usually sufficient for a cure, if seen early and persevered with.

(5.) *Blindness may be Due to Organic Changes in the Retina, Optic Nerve, or Brain.*—These changes may be inflammatory, and proceed on to softening of the nerve or its branches, or due to atrophy from anæmia or want of nutrition. This is the most hopeless form, as white softening, or ramollissement, is an irreparable affection.

General Treatment.—In all cases, if it is possible or practicable, the following plan of procedure should be carried out:

The bowels regulated; skin stimulated with daily baths; two open sores at nape of neck, one inch square, on each side of the spinal column; flannel clothing; appetite to be stimulated, and a diet consisting of animal food, eggs, white-fish boiled, oatmeal porridge, and cream—a brain diet, an important factor in a case. As the optic nerve not only originates in the spinal cord, but is freely blended with the medulla, the seat of reflex action, morning and night all the peripheral extremities of the nerves of the entire superficial portion of the body should be stimulated from half an hour to two hours with friction, sham-

pooing, palpation, and electricity. This faithfully performed, raises the standard of vitality of cord and bulb, and the patient sees better at once or after a few applications. The medical treatment is the same as for chronic inflammation and softening of brain—alteratives and tonics, iodide of potass, cinchona, and especially the ozonized preparations, as they tend to cleanse brain and optic nerve of all extraneous substances; glycerite of ozone, ozone-water, kephaline. Treatment to be persevered with for six or twelve months; change of air and scene often of utility; other cases benefited by rest and quietness, especially those caused by exhaustion and nervous debility.

If a real organic change has taken place in the optic nerve, all remedies are useless. In all cases there should be an avoidance of all malt or alcoholic liquors; all acro-narcotic drugs, especially tobacco, and hair dyes or tonics; and sexual congress at rare intervals. Probably of all causes that give rise to the great frequency of organic amaurosis, tobacco and syphilis are the most common and detrimental, and most likely to produce degeneration of the optic nerve.

THE LACHRYMAL, OR TEAR DUCT.

This gland is often subject to acute and chronic inflammation. The cause is usually exposure; the symptoms and treatment same as other forms of inflammation.

(1.) **Kerophthalmia.**—A deficiency of tears, a dryness of the eye, an absence of the mucous secretion, may be due to intense grief, or local depression, and may be palliated by the application of glycerine, or infusion of quince seed, and an eye-cup, until the mental condition can be restored.

(2.) **Epiphora.**—This signifies a redundancy of tears, an over-secretion. Its common cause is an irritation of the sympathetic; but it is met with in general irritability of the eye, especially in rheumatic and scrofulous ophthalmia. An occasional emetic; dry heat to the eye, if rheumatic; the salt-water lotion, if tubercular; and general treatment according to the cause present.

(3.) **Closure of the Puncta Lachrymalis and Obstruction of the Nasal Duct.**—It may be congenital, but it is more generally found to be due to the results or effects of inflammation of the sac, to effusion of lymph, and thickening.

The obstruction, from whatever cause, almost invariably gives rise to either acute or chronic inflammation in itself of the lachrymal sac, and sometimes fistula. Besides, the tears escaping on the cheek give rise to irritation and erythema of the skin.

In the treatment, the condition of the stomach, bowels, skin should be very carefully attended to, fever allayed, and hot fomentations of poppies to the eye. A snuff of bayberry and capsicum should be tried, so as to dislodge any lymph in the

opening into the nose; or he should draw in the breath, and hold the nostrils and mouth closed, so as to draw the tears down the duct by the pressure of the atmosphere; try an emetic of lobelia, and a generally alterative course; inhalation of iodoform and ether, tincture of iodine and iodide of potass. All means failing, a gold style should be introduced, and worn for a sufficient length of time. The constant pressure of the instrument causes the duct to dilate, so that the tears flow by its side. It should be taken out occasionally and cleaned, and then replaced. It affords very great comfort, and after wearing it a couple of months, it can be often altogether dispensed with. The style should have a round head, a little bent at the upper end, as this enables it to sit better and irritate less. Short pieces of catgut and other bodies are sometimes used instead, but none can excel in utility the gold style.

SQUINTING.

Squinting, or strabismus, is a want of harmony in the muscles of the eye. The common form met with in young persons is where the eye is turned inwards, or, *convergent*; the other form, in which the eye is turned outward, or *divergent*, is more rare, and is chiefly met with in elderly persons, from paralysis of the internal muscles. Both eyes may be affected, but this is not common.

The causes of squinting are very numerous. It may be congenital, or induced by bad habits, by imitation, by looking at pimples on the nose; or it may come on from a sty, which often interferes with the motion of the eye; by the use of one eye to the neglect of the other, or by shading one; it may also result from slight opacities of the cornea; from a variety of nervous causes, and it is often the result of reflex irritation in morbid conditions of the stomach, worms, teething and constipation; disorders of the sympathetic system, as fright, passion, etc., and also to disorders of the brain, as convulsions, congestion, effusion, hydrocephalous, etc.

Treatment.—If it be recent, that is not over a few weeks' standing, the difficulty can be frequently overcome by the removal of the causes, as teething, worms, disorders of the stomach and bowels, by the proper remedies; by avoidance of study and reading; by proper exercise to the eyes, and by wearing glasses for the purpose. But if the squint be of long standing, and is habitual, and above all, if there is the slightest disparity in vision of the two eyes, very little good can be effected, unless the internal rectus muscle be divided. This is a very simple proceeding, consisting in placing the patient under chloroform and placing a blunt hook under the muscle and raising it, and then dividing it. If the squint depends on

some opacity of the cornea, or organic disease of the brain, no interference should be permitted.

Protrusion of the eyeball is a general symptom of wasting disease, as consumption, anaemia, but it may be due to aneurisms, tumors, fatty deposits, osseous and encysted growths. The danger of tumors are twofold: destruction of the eye from continued pressure; and protrusion through the roof of the orbit into the cavity of the skull, with compression of the brain. The diagnosis is most important.

Cancer of the Eye may take place in a variety of forms—on the lids, behind the eye, and in the eye itself. At its inception, or during some part of its course, it usually runs into a melanotic form.

It is very easily recognized, by the pain and cachexia.

Its treatment should be chiefly by internal remedies to destroy the germ in the blood, as the ozonized cancer alterative, and glycerite of ozone, ozone-water, chian turpentine, and other antiseptics.

THE EAR.

The auricle, or external ear, forms an important element in man, and serves a variety of purposes, such as the protection of the delicate organ which it surrounds; preventing sensible perspiration, as it trickles over the head, from entering the ear; protecting it from wind and weather, dust and rain, the rays of the sun, and warding off various substances in active life. The mobility of the auricle causes wax to become dislodged and fall out. It also aids in maintaining an equable temperature and a proper degree of natural moisture within the ear, and assists in the catching of the undulations of sound, a sound conductor, or condenser, an assistant in transmitting the vibrations to the inner ear. Its use then may be briefly enumerated: to protect the ear, and in catching sound, or sound waves, and of aiding in conducting them to the inner ear; it gives knowledge, also, of the direction of sound, and quickens the perception of musical notes. It is subject to all the various diseases of the skin, to various growths and tumors.

DISEASES OF THE EAR.

The human ear is a perfect instrument of acoustics. Its mechanism is so arranged that the undulations of sound are transmitted or impressed upon the auditory nerve, or brain, in the most definite manner. The brain is the organ of hearing, the ear being simply the medium through which it receives its impressions. This, of course, reduces all diseases of the ear to two classes—the ear and brain. The human ear is subject to the same fundamental laws of physiology and pathology as

the rest of the body. This at once simplifies our investigations on ear diseases. Indeed, an overwhelming majority of ear diseases are due to inflammation and its results, and in this process various parts of the organ may be affected; all embraced under one general term—*Otitis*.

(1.) Inflammation of External Meatus.—The canal leading into the ear is often alone affected. The very sensitive lining of the canal may be inflamed from the introduction of irritating matter, an accumulation of hard wax, blows, cold, syphilis, tubercule, gout, rheumatism, and poor states of the blood.

Symptoms.—Dull, aching pain, increased on moving the jaw. Parts red, swollen, tender; the tumefaction being so great in some cases, as to close the canal and cause temporary deafness. There is likely to be swelling of the cervical glands on the affected side. In a day or two, a copious secretion of mucus—often watery, but abundant. In chronic cases there is a steady muco-purulent discharge from the ear, or otorrhœa; the dermis, or lining of canal, remains swollen; epithelium thrown off in scales, which accumulate and obstruct canal; hearing is impaired; great itching and general depression.

In some cases small abscesses, styes, or boils form, which may give rise to rigors, throbbing, narrowing of the canal, or collapse of its walls, and dullness of hearing.

Treatment.—If there is fever give aconite and belladonna, and general treatment as laid down, with local dry heat; attend to skin, bowels, and wash out the part frequently with warm soap and water, tonics; antiseptics and best of diet.

(2.) Inflammation of the Membrana Tympani and Middle Ear.—Beyond all question, the diseases of the auditory apparatus, which occur most frequently and possess the greatest interest, are the inflammatory affections of the tympanum and middle ear. The middle ear properly consists of the membrana tympani, the tympanitic cavity, the mastoid cells, the chain of ossicles, and certain muscles, vessels, and nerves. In a small, confined space, we have a most delicate, intricate structure, performing important functions; easily disturbed by the standard of health, by a variety of causes, and attaining increased importance from their contiguity to such vital parts as the labyrinth, the internal jugular vein, the internal carotid artery, the dura mater, and several venous sinuses of the brain, so when we look at the parts implicated, there should be no apathy in our treatment, no ignorant, officious meddling.

Causes.—It may arise from cold, damp, exposure, rheumatism, gout, boils, injuries, or accidents, injudicious tampering with the ear with hair pins. It may also be due to extension of inflammation inwards, or upwards from the pharynx, ear-

rying the germs of scarlet fever, quinsy, diphtheria, measles, smallpox, whooping cough, catarrh, pneumonia, bronchitis, influenza, syphilis, mercury, tuberculæ, and the use of nasal-douches. When the inflammatory action reaches the throat, it travels along the eustachian tube, which is the channel designed by nature for maintaining a due equilibrium between the atmospheric and tympanic air, and for draining superfluous mucus from the tympanum. When all is well it serves those purposes admirably, but when disease exists it serves as a channel for carrying diseased germs up from the pharynx. The tube is short, being one-and-a-half inches in the adult, but its continuity of mucous membrane permits an easy road for the germs to travel, and more so if it is a young child, in whom the tube is much shorter and more open than in the adult. Dentition, first and second periods, are productive of inflammation of the middle ear. The vaso-motor impressions are readily conveyed from the inflamed gums to the correlated membrana tympani by the dental nerve, and the nervi-vasorum of the tympanic branch of the internal carotid artery. There can be little doubt that the difficult or retarded dentition due to a want of phosphates in the modern mother's milk, is a common cause of inflammation of the inner ear. It is impossible to doubt it when we look at the troubled little face, the resting of the head on the nurse, the thrill of agony that passes over its features, accompanied with piteous cries or shrieks when its position is moved, especially if done suddenly; and, more than all, the constant raising of its little hand to the side of the head: all indicate the agonizing sufferings of carache.

Of all living diseased germs, those of scarlatina are most destructive to the ear, give rise to hopeless chronic affections, or drift into deafness. The ear, in scarlet fever, is about as obnoxious to irritation as the kidneys, and when we bear in mind that every congestion of the lining membrane of the ear is a true periostitis, and every ulceration a caries of its osseous walls, so that with better care, a true appreciation of germ-diseases, a more thorough antiseptic course, many lives might be saved, useful ears spared, and deaf-mutism become a rare exception.

Symptoms.—General symptoms of inflammation, headache, pain in back, legs, rigors, and a fever; uneasiness in ear, followed by sharp, lancinating pain in the inner ear, increasing in severity; there are also impairment of hearing, giddiness, a sense of fullness in the head, and an increase of pain in moving jaws, mastication, or swallowing, moving the head, or blowing the nose. On examination of the membrana tympani, it is found red and congested. Beating noises in the ears; eyes become injected; countenance anxious; fever greater; function

of skin, kidneys, and bowels disordered. There may be delirium or convulsions. There is always great depression and despondency. If case is not seen to there may be facial paralysis, from a spreading of the inflammation, power often regained when morbid action ceases. Should the attack be a slight one, or the vital force vigorous, and treatment appropriate, perfect resolution may take place; but if powers of life are low, suppuration may take place, pent-up pus bursting on discharging itself, if in inner ear, by perforation of *membrana tympani*; or in more grave cases the inflammatory process spreads into the mastoid cells internally, or by bony meatus to the periosteum, covering the mastoid process externally.

In external otitis, perforation of the *membrana tympani* may take place, owing to the extension of inflammation from within outwards.

The disease usually runs a very rapid course, suppuration often taking place in from twenty-four to forty-eight hours from its inception, a significant fact for rational and active treatment.

Treatment.—The cause, if it can be removed, should be done promptly. Then patient should be put to bed in a warm room, 70° F., moist atmosphere, well ventilated, comfortable, and free from all noise, no talking, the greatest quietness; dry heat to the ear and side of head, such as hops, chamomile flowers, bran, or salt, in bags or pillows, made hot in oven; and permit no food requiring mastication, for moving the jaws interferes with the rest of organ. The fever, as well as the local inflammation, must be regulated by arterial sedatives. To do this effectually administer a saline purge, or cascara, or both, and enemata, if not soon moved; heat to feet; aconite, belladonna, and sweet spirits of nitre freely. If the skin does not become moist, compound tincture of serpentaria, so as to cause free diaphoresis; hot drinks; near night either chloral or Dover's powder, so as to get a long sleep. The dry heat is of primary importance, and should be watched with care. Never poultice either an eye or an ear is an injunction to be obeyed. The idea of this line of treatment is, if possible, to prevent the formation of abscess, or suppuration, as that is a result to be dreaded, as we never can know how, when, or where it may terminate, or to what it may lead. Case, otherwise, should be placed upon alteratives and tonics. If there is a manifestation of gout or rheumatism, colchicum, quinine, iodide of potass; if upon teething, lance the gums; as soon as fever, pain, etc., are relieved, alteratives and tonics.

(3.) **Otorrhœa.**—Catarrh of the ear, or a purulent or mucopurulent discharge from the ear—a sequel or result of inflammation, or a symptom of polypus; granulations; thickening

by lymph ; sebaceous tumor in meatus ; is a common and stubborn disease.

Causes.—Irritation, inflammation, even if not appreciable, is the cause, so we have to recapitulate the causes of inflammation of the middle and inner ear ; teething and scarlet-fever in tubercular children ; in adults it may depend on gout, rheumatism, syphilis, and other depressed states of the system. The secretion is always contagious, being loaded with bacteria, if muco-purulent, but if very offensive, the *oidium albicans* are present in it. It may be tinged with blood.

Symptoms.—A muco or muco-purulent discharge from the ear, either scanty or profuse, occurring all the time or ceasing at intervals. If the discharge is very purulent, that is, loaded with diseased germs, it may be corrosive or eating in its character, and destroy the *membrana tympani*, the bones of the ear, or cause caries of the bony walls of the meatus and tympanum. Diseased germs may penetrate to the mastoid process of the temporal bone, or into the petrous portion of the same bone, until the brain or its membranes become involved in the unhealthy action. This event is ushered in with rigors, fever, and marked cerebral symptoms, and ultimately convulsions, coma, and death. Inflammation or abscess of the brain may be induced by extension of disease to the cerebral sinuses and veins, as well as the *dura mater*. If there is any cancerous cachexia, it may also be developed at this point.

Treatment.—The first point is to wash out ear with tepid water and castile soap, and examine to ascertain if no growths or polypi exist. There being none, the instructions must be to syringe the ear out thrice daily with castile soap and tepid water, and after with some antiseptic injection, as a few grains of borax to an ounce of tepid water, or one-half to one grain of permanganate, or ten grains of chlorate ; after injection, the walls of the meatus to be brushed over with either vaseline ointment or ozone ointment, or glycerine and borax, or glycerine and balsam of fir or Peru ; a little cotton-wool, saturated with either of these, to be placed loosely in the outer meatus, and changed frequently ; nothing to confine discharge in the ear ; if weather is cold, ear-laps ; then place patient on the following alteratives week about in succession : ozonized compound phytolacca, iodide of potass in stillingia compound. At the same time tonics, as sulphate of quinine and aromatic sulphuric acid, or compound tincture cinchona and mineral acids, or glycerite of ozone. Bowels and skin to be looked after ; clothing warm. The diet to be of the best, nourishing, and in abundance—animal food, milk, eggs, fruit. Parents must bear in mind the chronic, stubborn nature of complaint, and persevere. True, other alteratives might be used, and also other tonics, but as a

rule the above are excellent. All applications about the ear must be of the most soothing kind, and antiseptic in their chemical character.

(4) **Hæmorrhage from the Ear.**—An escape of blood from the ear, or otorrhagia, may arise from various causes. It may be due to—

(1.) *The effects of inflammation*, as granulations, polypi, excrescences, and abscesses of the auditory canal, or to caries and necrosis of the petrous portion of the temporal bone, with destruction of the membrana tympani. If spicula of bone wound any artery, it may be fatal.

(2.) Persons falling from a great height directly on their feet, the vertebral column is unable to resist or ward off the impetus of the fall, and the whole force is spent upon the base of the skull, causing a fracture, by which a communication is established between the dura mater and middle ear. The membrana tympani being ruptured, blood and serum oozes externally. If both sides are equally affected it is regarded as unfavorable.

(3.) *Wounds and ulcerations* of the auditory passage, in whatever manner produced, by hair-pins, slate-pencils, foreign bodies.

(4.) An extremely rarefied condition of the atmosphere, as on high mountains, up in balloons; or down in mines, diving-bells, sneezing, coughing; membrana tympani gives way.

(5.) It may be a vicarious hæmorrhage, and thus replace normal menstruation in atrophy of uterus.

Polypus, Granular Growths, Thickening, etc., in the meatus, or canal leading into the ear, or in the middle ear, usually the result of inflammation or irritation, are best treated in the following manner: The affected ear to be thoroughly cleared out of all secretion by the injection of lukewarm water, then with castile soap-water in it to soften. Afterwards the ear to be well dried, and the head to be turned to one side, and a spoonful of warm alcohol poured into the ear, where it should be allowed to remain ten or fifteen minutes. This is to be done three times a day. The alcohol produces a slight burning sensation in the ear. If acute pain be excited, weaker solutions must be employed, afterwards the stronger preparation. The action of the alcohol on the polypus granulations is: it first whitens them by coagulating the mucus which lies on their surface, and subsequently penetrates the tissues, producing coagulation in their vessels, and thereby leading to the shrinking of the new formations. The time occupied in the treatment varies from a few days to several weeks, or even months. The soft, round cell polypi yield most rapidly, the firm, fibrous more slowly, but all disappear completely, and leave no trace behind. The deductions that are adduced from a long and extended use of the drug are as follows: A radical cure for all forms of

polypi of the meatus, ear; excellent for granulations and thickening of the mucous membrane; for the removal of all growths, thus superseding instruments and all other drugs.

Relaxation of the Membrana Tympani, following inflammation, is a common cause of deafness. The proper tension of the membrane is of great importance to good hearing, to receive the vibrations or undulations. After inflammation it often loses its tone, and the vibrations do not act, and a dulness of hearing is the result.

This is almost invariably cured by brushing the membrana tympani with collodion, which causes it to contract and produces the necessary tension. It should be brushed over very freely. It seldom has to be repeated over a few times.

DISEASES OF THE EUSTACHIAN TUBE.

This tube, by which the tympanum communicates with the pharynx, is from one and a half to two inches long; composed partly of bone, partly of fibro-cartilaginous tissue, and covered with mucous membrane. It affords an entrance for air into the inner ear, or tympanum, and an exit for mucus.

(1.) **Obstruction of the Tube**.—Permanent obstruction is generally the result of inflammation; a local irritation must precede the effusion of lymph, thickening, and obliteration, or filling up of the tube; obstruction produces exhaustion of air in the tympanic cavity, consequently there is a pressure inwards of the membrana tympani, a forcing together of the chain of bones, pressure on contents of labyrinth, and deafness.

Causes.—Inflammation or irritation; especially affections in which micro-organisms are present, such as chronic catarrh, mumps, tonsillitis, bronchitis, asthma—diseases in which the amœba are present, which worm their way up this tube, and cause thickening of its mucous membrane, stricture, or a deposit of lymph at tympanic opening, or exostosis of its walls. In boiler-makers, frequenters of the surf, as frequent diving in sea-bathing, the shock is great to the membrana tympani, but acts disastrously on the tube. Vacuums produced by cannon, nitroglycerine, etc.

Symptoms.—Deafness is the symptom present, and in order to decide whether it be due to a blocking up of the tube by lymph, or other inflammatory products, the following might be tried: The entrance of air into the tympanum during act of deglutition can be distinctly heard by the stethoscope, an elastic tube eighteen inches long, having its ends tipped with ivory, on the principle of the telephone. One end being inserted into the patient's ear and the other into the physician's, the patient is directed to swallow saliva with mouth and nose closed. If the tube be pervious at the moment, the patient experiences a

sensation of fullness in the ear; practitioner can also detect a faint crackling sound, produced by slight movement of membrana tympani. When the mucous membrane of tube and membrana tympani are thickened, a gentle flapping sound will be heard instead of the crackling. If the stethoscope fail to detect any sound during deglutition, or if no sound be heard when a forcible attempt at expiration is made, with mouth and nose tightly closed, and if no other cause can be detected for dullness of hearing, then it may be presumed that the tube is closed. Another plan to test whether the tube is pervious or not, is by means of the nasal douche at an elevation of several feet; while stream is running up one nostril and down the other, a sudden closure of the open nostril causing patient at the same instant to hold breath firmly, will force the fluid up to the inner ear if open. This will be readily recognized by the neuralgic pain in ear.

Treatment.—Much good can be effected by improving the general health, by nourishing diet, daily bathing, warm clothing, and a warm, equable climate. The removal of such causes as catarrh, asthma, bronchitis, tonsillitis, or any enlargement or ulceration near the faucial opening, and by placing the patient upon a general alterative and tonic course. This general treatment to be based upon the cause or causes giving rise to it.

(2.) **An Open Condition of the Tube.**—The normal condition of the eustachian tube is that of closure by apposition of its walls. It acts like a valve, which is opened by muscles of the palate and pharynx during deglutition. When permanently open, complaint is made of buzzing and other noises in the ear. Usually uneasiness about throat; a trickling down from sinuses of head, common in catarrh, and ulceration of the fauces from diseased-germs. By getting rid of cause a cure is usually effected.

Tinnitus Aurium; or, Noises in the Ear, may be brought about by a great variety of causes:

(1.) It may be due to either anæmia, or congestion of the brain, and thus is a symptom of a large number of diseases.

(2.) It may be due to the action of drugs, such as quinine and acro-narcotics.

(3.) To diseases of the ear, inflammation, relaxation of membrana tympanum, open eustachian tube, etc.

(4.) Accumulation of wax in the external meatus. The wax can be softened by introducing warm glycerine, filling ear; then stuffing with cotton-wool, and syringing out at night with tepid water, with ten grains of bicarbonate of potass to the ounce.

Auditory Vertigo.—A condition of giddiness dependent on disease of the ear. There is usually associated with it, vomit-

ing and physical debility; a pale, haggard expression of the features, and it comes on in fits, or paroxysms.

The ear, in some way or other, is at fault, and the centres suffer; usually a lowering of health, which is the great factor in causing the disease; when neither stomach nor liver is at fault. True, stomach vertigo is very common. Auditory vertigo is present in ear diseases, and is liable to attack persons, already deaf, in a variety of forms. The pneumogastric nerve sends a branch to the membrana tympani, so as to enable us to hear the dinner-bell; and irritation from the ear can be carried back so as to cause the gastric symptoms. The fifth nerve is also carried to the membrana tympani.

The vast majority of cases in which vertigo of definite and uniform character is apparently excited by gastric disturbance, an auditory defect, will be discovered on careful examination.

OTALGIA AND EARACHE.

Neuralgia of the auditory nerve is simply the cry of a nerve for better and purer blood. It may be brought about by cold, damp, rheumatism, gout, tubercle, syphilis.

When an attendant upon some acute disease there may be fever, but more generally it is unaccompanied by any febrile disturbance. The intimate connection of the auditory nerve with the various nerves of the face, especially those supplying the upper and lower jaws, the stomach, liver, uterus, render ear-neuralgia common where those organs are out of gear. Ear-ache is thus common, as its causes are numerous and varied.

It is easily recognized by the sharp, lancinating pain in the ear, very severe; frequently also shooting through the nervous filaments distributed over the side of the head and face, causing much suffering and great restlessness.

Treatment.—If it is traced to imperfect performance of stomach or liver, an emetic of lobelia, and saline purge; any uterine derangement, compound betin pill; a carious tooth, extraction; or to any special diseased germ, treat for its destruction. In all cases, and at once, relieve pain by resting the head on very hot pillows of hops, or chamomile flowers, or bran, or salt; or the roasted bulbs of onions; or better still, garlic. In addition, if very severe, the aconite, belladonna and chloroform liniment should be applied to the side of the face: cotton-wool, saturated with glycerine, tincture of opium and belladonna in ear. During the day, aconite and belladonna in alternation with quinine, are true stimulants to this nerve, and it is well to give pretty large doses; at night either chloral or morphia, to procure a good night's rest. In the meantime, treat the case according to the cause, with alteratives and tonics; and bear in mind that in this painful nerve-cry, that

brain-food, or nerve-forming diet, is an essential and important element in the cure. Animal food, eggs, milk, boiled white-fish, oatmeal porridge, cream, and those admirable drugs, glycerite of ozone and kepheline. Nutrition is an important indication in the treatment, so as to prevent a recurrence, especially among the little ones.

DEAFNESS.

May be the result of a variety of conditions, and embraces a large proportion of the diseases of the ear, in which the hearing is defective, and associated with some nervous symptoms. In this category, syphilitic, tubercular diseases—inherited or acquired—of the auditory nerve, embrace a large class, as well as gout and rheumatism, and diseases of the stomach. Cases of extreme deafness, and perfect hearing, alternating, without any explainable reason or defect, are common. Besides, there are a class of cases due to emotional influences, which are very interesting, and form a distinct group by themselves. We often see cases where the hearing is completely lost on witnessing the sudden death of a dear friend; or upon the receipt of news of a painful character. Women often become deaf by fright—a cry of fire, or an alarm of burglars in the house; at witnessing the sight of a man with his throat cut, or even on the receipt of good news. In such cases the hearing power was good up to the catastrophe, and the deafness instantaneous. The true explanation in such cases is the shock or hyperæmia of the brain, or medulla, at the origin of the auditory nerve. Then there is the often either impaired or total loss of hearing, from mumps, diphtheria and other acute diseases. In nervous deafness there is a certain train of symptoms that are excellent landmarks of the actual lesion that exists, and under this the deafness from fever is usually classed.

(1.) **Rheumatism of the Ear.**—The structure of the *membrana tympani* is a very perfect, white, fibrous tissue, even more so than the pericardium, or lining of joints, and is very apt, if weakened by cold or other causes, to be relaxed, and the blood charged with lactic or butyric acid, giving rise to additional irritation, effusion, thickening, deafness.

Symptoms.—All the symptoms of rheumatism, either preceding or co-existing, with a tenderness of the scalp, temple, mastoid process, jaw, and teeth of affected side. The pain in the ear is distressing; tinnitus, auditory vertigo. Symptoms greatly aggravated at night, with acid perspiration, and urine loaded with uric acid. An acute attack may prove destructive by producing periostitis and caries. In some cases persistent otorrhœa results, and exfoliation of lining membrane of ear.

Treatment.—Same as for *Rheumatism*, giving quinine, and

salicylate of soda heavy, with pillows of dry heat to ear. Pain to be relieved, at all hazards, with morphia or chloral, and a cure established on alteratives and tonics. Irreparable deafness is likely to follow if not treated with great activity and care.

(2.) **Gout of the Ear.**—A most common cause of deafness. May occur by itself, or during, or after an attack of gout. The vital forces of the ear, or rather *membrana tympani*, and covering of small bones, is low, which permits of a union of uric acid and soda, which forms concretions on the *membrana* and small bones, and total deafness.

Symptoms.—As the vital forces are a degree lower than in rheumatism, the pain in the ear is dreadful; sets in about midnight, when the electrical forces of the atmosphere and those of the body are low. The pain is of a tearing, twisting character; burning, beating noises in the ear; swelling, redness; the small process of the ear bones suffer most. Often loss of consciousness, delirium and convulsions.

Treatment.—Same as for *Gout*, dry heat and relief of pain.

(3.) **Nervous Deafness.**—There are five different varieties:

(1.) All that class of cases due to anæmia of brain, exhausted vital force by sexual excesses, masturbation, shock; want of nutrition in brain; action of sun; railroad jars, meagre brain-food, isolation, monotony, sameness, obliterating the cerebral convolutions. Best treated by removal of cause; nourishment, brain-food, and remedies to give richer blood.

(2.) *Congestion.*—Plethora, determination of blood to brain. The deafness of fevers may be due to this or anæmia. Best treated with foot baths, free purgation, and stimulants to nape of neck.

(3.) *Reflex.*—Chiefly teething, stomach or liver, or bowels, or uterine irritation, or masturbation. Get rid of cause.

(4.) *Use of Drugs.*—Quinine, chloral, opium, belladonna, tobacco in large doses, carelessly, or indiscriminately administered, cause deafness.

(5.) *Organic.*—Due to some organic change in nerve or brain; as softening, or old age; involving the condition of senile atrophy. Very hopeless.

In the first four varieties, an effort should be made at cure by an alterative and tonic course of treatment; keeping in view that it is the brain that hears: that the auditory nerve, ear and appendages are simply the medium, or instrument. Ear diseases are most amenable to constitutional treatment. In the organic form, treatment same as for chronic inflammation of the brain, blisters to nape of neck, brain food, change of air, especially to the mountains where the atmosphere is highly rarefied and ozone abundant.

DISEASES OF THE SKIN AND CELLULAR TISSUE.

DISEASES OF THE SKIN.

The skin, the largest gland in the body, whose function is to eliminate waste material, morbid matter, dead disease-germs, and, to a certain extent, aerate the blood, is an interesting study, both in its normal and morbid state. The practical nature of the present age is cure, as a groundwork for which we must aim at the removal of cause; the regulation of the all-important functions of digestion, assimilation, nutrition, keeping the blood pure, and causing every eliminating organ, as the lungs, liver, bowels, kidneys, to perform their own functions. The division and subdivision of skin diseases are most perplexing to every one, still it is very difficult to lay down one that would meet the requirements. For therapeutical purposes, all the diseases could be arranged under three heads, namely: diseases depending upon disorders of digestion and assimilation; diseases depending upon disorders of enervation, and disorders of nutrition. But even here they blend together: altered nutrition from defective organization; and where the life-power of the skin is insufficient, congestion. Even in cases of a starved condition of the skin, as we have in the fish-skin disease, the mingling is complete; so it is best for us, in our limited space, to follow the old division, as laid down in our standard works. We begin, then, with inflammation of the skin, or—

EXANTHEMATA.

In which we have the true condition of irritation, inflammation, with redness, congestion, burning or tingling pain, and the reflex condition, prostration, headache, languor, debility, rigors, and a fever. In our old teachings, the skin was described as a great eliminating gland, but under modern light, we must qualify that statement. The skin will eliminate waste or dead matter, but no living poison; it must die before it can be eliminated. The diseased germs may colonize on the skin, as in scarlet fever and variola, but they will peel off or desquamate; they are not eliminated.

In indigestion, malassimilation, with the languor, white or brown coat on tongue, the normal living matter concerned in nutrition is degraded into the diseased germ bacteria. This modification or change of living matter may occur in the mouth or stomach, and their number or abundance is in proportion to the amount of malassimilation present, and the lack of vital energy in the individual. These micro-organisms are swallowed, and find their way into the blood, on which fluid they live, although there is an element of repulsion in it to their existence, and they seek weakened tissue as best suited to their nutrition and growth; so if the vital integrity of the skin is weak, its blood-vessels relaxed, the bacteria will aggregate together in its meshes, and give us an *exanthemata* in the form of an erythema, roseola, or urticaria. Some authorities think that those germs seek the surface to get access to free oxygen, like the germs of variola; and there would seem to be some truth in the idea, for the eruption in both cases can be caused to disappear by the application of parasitocides, or lotions, or ointments, to prevent the access of free oxygen, on applying which, they disappear, or become quiescent and die. Keep away free oxygen, or pabulum, or food supply, and their vitality is gone, or they are so vitally deteriorated that they can do no more mischief. The cause, then, of this class of skin diseases is a perversion of nutrition, a degradation of healthy living matter. But if there be another species of germinal matter in the blood, lower, more degraded, like the syphilitic, it may contaminate the ordinary bacteria, and give us a special form.

(1.) **Erythema.**—A redness, a blush, equally diffused through the skin, characterized by an efflorescence, or superficial redness in patches, irregularly circumscribed, and of variable form and extent. The more exposed portions of the body are its common seat, as face, hands, neck, shoulders.

Causes.—Malassimilation, micro-organisms, bacteria.

Symptoms.—Those peculiar to inflammation of skin—heat, redness, swelling, pain, burning, tingling.

Varieties.—*Erythema simplex*, or fugax, mild, fleeting nature; *erythema solaris*, due to heat of the sun; *erythema intertrigo*, due to chafing; *erythema pernio*, when due to frost-bite; *erythema circinatum*, when it occurs in round, red patches, slightly raised, often present in acute rheumatism in the tubercular; *erythema læve*, when it occurs in the lower extremities in dropsy; *erythema nodosum*, when it occurs on the legs, in round or oval raised patches, resembling nodes; *erythema syphilitica*, when copper-colored, and sensibility of skin impaired.

(2.) **Roseola.**—Same cause and symptoms as erythema, only that it occurs in patches, spots, rough, irregular, elevated, not diffused through the skin, with redness and fever.

Erythema and roseola resemble scarlet fever and measles only in the eruption. In scarlet fever there is always sore throat and a strawberry tongue; whereas in erythema there is no sore throat, no strawberry tongue; besides, in scarlet fever there is the precise number of days of incubation, of fever, and rash. There is also albumen in the urine, and skin peels off, which do not take place in erythema. In measles, there is the coryza or sneezing, or running at nose, the injected conjunctiva, the definite period of incubation, fever, rash. None of those but the rash present in roseola; and its appearance, even in children suffering from dentition, has no regularity.

Treatment.—Erythema and roseola are best treated with a gentle lobelia emetic, followed with either a warm alkaline bath, or alcoholic vapor-bath; open the bowels speedily with salines, and repeat every two hours until moved freely; aconite and compound tincture of serpentaria for fever; rest in bed, beef-tea, and milk, for diet.

Locally and internally parasiticide remedies; destroy germs, and tone up the digestive powers. To the skin, then, in all cases apply one of the following lotions, or ointments; and if the lotion is selected, it must be kept continually moist; for that purpose it is well to change often, and keep covered with oiled silk: Lime-water and tincture of iodine, borax, dilute acetic acid, and water; bicarbonate potassa, or vaseline, or ozone ointment; and internally, chlorate or permanganate potassa, sulphurous acid, compound tincture cinchona, and nitromuriatic acid, or saxifraga.

(3.) **Urticaria.**—Nettle-rash, characterized by the formation of prominent patches or wheals, sometimes white, pale, or red, but usually with a red roseolar; appear suddenly, and go away rapidly; they are accompanied by heat, burning, tingling pain, great itching, prostration, rigors, fever, with a heavily-coated tongue, and depraved secretions. Some cases chronic and stubborn.

Probably more common among women with defective menstrual secretion, and occurring at the expected period; still, quite a large percentage are due to indigestion, malassimilation, derangement of stomach and liver; through all we trace the bacteria. Another class of cases may be caused by articles taken as food or medicine, as shell-fish, mushrooms, cucumbers, cheese, pastry, bad milk, nuts, bitter almonds; henbane, turpentine, nux vomica, balsam of copaiba, may induce urticaria, and also erythema and roseola, and the oil of copaiba regular papulæ. Urticaria may also appear as a symptom of gout, rheumatism, malaria, uterine inertia, and retarded or difficult dentition.

Treatment.—Emetic of lobelia; warm alkaline or vapor-

bath; free action of bowels with salines; rest in bed, warm room; aconite and serpentaria for fever; if due to a dormant condition or inertia of the uterus, compound betin pill; very plain, light, and nutritious diet. Locally, apply warm vinegar, or glycerine and borax, or lime-water and tincture of iodine, or plain borax-water, or vaseline, or ozone ointment; antiseptics internally, yeast, chlorate or permanganate, aromatic sulphuric acid, or with quinine, or nitromuriatic acid.

In all cases a mild alterative and tonic course, using glycerite of ozone, ozone-water, kurchicine, cinchona and mineral acids, for several weeks or months. In case of special germs being present in the blood, as the syphilitic, general treatment as laid down under that head. The exanthemata are regarded as non-contagious; but as they depend on the presence of a contagium vivum in the blood, identical in its chemical and microscopical character with erysipelas, we often see them of an epidemic or endemic form.

HÆMORRHAGIC.

A hæmorrhage of blood into the skin may take place in a number of diseases, and from a variety of causes, as in scurvy, from a deficiency of the salts of potash in the blood; as in purpura, from a breaking-down of the red disks, and weakness of the walls of capillaries. This may take place in the follicles of the skin on the body in the acute form in circular dots; or in the chronic form on the limbs, constituting black leg. In typhoid fever an effusion takes place into the follicles, constituting petechia; or in variola contracted from opposite and antagonistic races, it is often so virulent as to become black or hæmorrhagic small-pox—a fatal type. The white race of America have much to fear from the living disease-germs of both blood and skin, living as they do among other races, who, if they catch the disease, will transmit it back with a potency and virulence indescribable. For hæmorrhage into the skin see the various diseases enumerated.

VESICULÆ.

A bleb, blister; a terminating of inflammatory action in effusion, with the bacteria in the serum.

(1.) **Sudamina** has very erroneously been placed among them. This consists of crops of small, transparent vesicles, like glass beads. Most common where skin is fine and delicate, as front of neck, chest, and inside of arms. Excessive sweating, either caused by the use of powerful diaphoretics, as pilocarpine, or a depression of the brain so great that the normal contractility of the sweat glands are paralyzed so that the sweat

forms blebs; vesicles common in such states of nervous prostration, as phthisis and typhoid fever.

(2.) **Eczema.**—Some doubt the propriety of placing eczema under this head, but as we have a discharge of serum taking place from the sebaceous ducts of skin, and superficial moist excoriations or patches of ulceration, covered with scabs or crusts, constituting a humid tetter, we shall place it here. The affected skin becomes red, inflamed, and stiff. It is generally reckoned a non-contagious skin disease, but this is also in doubt, for if we place the serum under the field of a microscope of 2500 diameters, we can readily perceive the bacteria and their movements, which must of necessity render it communicable. In all cases the general health suffers; there is depression, loss of appetite, irritability, restlessness, disturbed sleep. It may be acute or chronic, and occur on any part of the body, and there may be pruritis, or itching with tingling may be very decided.

One would naturally expect that eczema would be a disease of the "great unwashed," or lower stratum of mankind. Instead of that, it is most common among the better portion of society; and its cause, in nearly all cases, can be traced to over-feeding, indigestion, worry, anxiety, over-work, care, and those great factors, gout, tuberculae. In some cases, it is closely identified with melituria, or sugar in the urine.

Treatment.—The removal of cause; relieve the portal circulation; correct dyspepsia by cinchona and acids; call the kidneys into activity by diuretics and haircap moss, and give more brain-force by administering glycerite of ozone, or keph-aline; meet the gouty tendency with colchicum and quinine. As regards diet, limit the starchy, saccharine elements; forbid malt liquors, and let animal food, eggs, milk, fresh boiled fish, vegetables and fruit, be the leading articles. As to local treatment, if there are crusts, scabs, or incrustations, remove them by poultices, and if on scalp, cut hair short, and then keep applied some bland, soothing antiseptic ointment; do not wash much, nor never keep it uncovered, as the access of free oxygen in the atmosphere gives it fresh growth. Any of the following ointments will be found of great value: Ozone ointment; sulphuric acid ointment, iodoform ointment, etc.

To relieve the itching, if over the body, the conium bath, and repeat it, as it has a most efficacious action on the disease.

Cases in which sugar is found in the urine are chiefly those of persons in middle life, and is generally due to over-feeding, both in quantity and quality.

Besides a generous diet, attention to daily bathing, building up vital power, the use of compound syrup of phytolacca, syrup

of yellow dock, with iodide of potass and tonics, as cinchona and mineral acids.

(3.) **Herpes.**—Tetter, a contagious disease of the skin, consisting of clusters of vesicles upon inflamed patches of irregular size and form. Some cases run a definite course, while others are intractable and chronic.

There are numerous varieties, as *herpes labialis*, occurring on the lips from a cold; *herpes preputialis* occurs on the foreskin; *herpes vulva*, on the vulva; *herpes zoster*, zona, or shingles; very troublesome, inflamed patches following the course of an intercostal nerve, with a crop of vesicles in the patch, forming a band encircling one-half the body; *herpes ophthalmicum*, a streak of inflammation with vesicles following the division of the fifth nerve; if the nasal branch is affected, the eyeball to which it supplies branches may be inflamed. It is met with in neuralgia.

Treatment.—Same as *Eczema*; attention to bowels and regulation of diet. Prick vesicles and press upon the exudation a sponge saturated with solution of permanganate of potass or borax, and then keep applied sulphuric acid ointment, weak. Scabs, excoriations, or inflamed patches, best treated by constant wet or moist lotions, as lime-water and tincture of iodine. Herpes should be treated as a contagious and infectious skin disease—the serum of the vesicles containing millions of bacteria, and it is wrong, reckless, and exhibits great ignorance to apply any caustic in such cases. Nothing is to be gained by severe measures but a further degradation of living matter and a re-appearance of the disease in a more aggravated form. Remedies locally, sufficiently strong to destroy the bacteria; lotions, or ointments; if the latter, ozone ointment is the best, as it is destructive to all micro-organisms; keep it constantly applied; change dressing thrice daily, destroying the cloths each time, and puncture any new crop as they appear. In this way a very rapid cure is the result—it starves it out. In all cases, tonics and alteratives, same as in eczema.

In the mercurial, syphilitic, and tubercular forms of eczema and herpes, the treatment does not differ. In those cases a long-continued use of internal parasiticides.

BULLÆ.

Under this head we have two conditions identical with eczema and herpes, only that the vesicles or blisters are large, ranging from a three-cent silver piece up to a goose egg. The serum and matter, or contents, consist of bacteria, vibrious, and diseased germs of syphilis and tuberculæ. The only satisfactory explanation that can be given for the enormous size of the vesicles is the status of vital force: when small, as in eczema and herpes, vital force a little shattered; when the size of mar-

bles or eggs, the vital force excessively deteriorated; constitutional powers enfeebled with the diseased germs of syphilis or tuberculae.

(1.) **Pemphigus**.—Characterized by large round, or oval blisters, or vesicles, or bullæ, varying in size from one-half inch to two or more inches in diameter, and appearing on any portion of the body. Each bleb is at first filled with clear serum, which soon loses its transparency and becomes puriform. There is usually some constitutional disturbance and fever.

(2.) **Rupia**.—Is simply pemphigus, in which the serum, diseased germs and pus dry up, become flattened; they contain a little fluid, which soon dries up, and concretes into dark, black scabs. There may or may not be inflammation around their edges or margins; and they may keep secreting or accumulating diseased germs from the blood, and in this way the incrustation or scab may increase in size and become quite hard. Those crusts, after a time, may fall off, leaving deep, perforating sores, which may heal, or again fill up. If the case is properly appreciated, by a reconstruction of vital power, they heal up rapidly. They receive different names, according to their size, consistency, and tendency to eat in, as *rupia simplex*, when the crusts are thin, small, superficial; if crusts are large and prominent, *rupia prominens*; if deep, extensive, and still penetrating, *rupia escharotica*.

Treatment.—The stomach, bowels, kidneys, skin, should be seen to; the best of food, broiled beefsteaks, oatmeal porridge and cream, eggs, boiled white-fish, and every article crowded in to make good, rich blood; and alteratives and tonics. The ozonized remedies should have the preference, as they are both constructive and antiseptic.

In pemphigus it is a good plan to puncture the vesicles, not disturbing the cuticle, and dry up the exuded serum with antiseptic sponge. Either vaseline or ozone ointment should be kept constantly applied.

If the bacterial odor is quite great, bandage the limbs, and keep the roller saturated with either a solution of permanganate of potass or boro-glyceride.

PUSTULÆ.

In the pustular forms of skin disease, ecthyma and impetigo, we have in the former effused lymph and bacteria, and in the latter, bacteria and pus corpuscles, like eczema, herpes, pemphigus, and bullæ; all contagious, as they are simply colonies of diseased germs.

(1.) **Ecthyma**.—An effusion of lymph and bacteria into the skin, the result of malnutrition or diseased germs. It is characterized by large, round, prominent pustules, occurring on any

part of the body, especially on head and face. Pustules usually distinct, seated upon a hard, inflamed base; terminate in thick, dark-colored scabs, which leave superficial ulcers, followed by cicatrices. Sometimes it is acute, and preceded by pain and fever; generally it is chronic, and is due to indigestion, torpid liver, bad living, masturbation, syphilis, tuberculæ. Common among young men and girls at puberty; also on the face and heads of badly-nourished children. If general health is much deteriorated by mercury, it may assume a malignant aspect.

(2.) **Impetigo.**—In this we have the pustules breaking down; there is a purulent discharge, which dries up and forms incrustations, from beneath which the discharge flows; the crusts become thicker and larger all the time, and, falling off, leave raw surfaces. The shape and size correspond with effusion in ecthyma, being mostly in clusters.

The varieties amount to nothing, it is simply the disease in another form or shape. For example, it is called *impetigo figurata*, when it occurs on face; pustules arranged in oval groups as they burst, and form scabs; heat and itching are intolerable; often fever, and swelling of lymphatics. In tubercular children, suffering from malnutrition and bad food, often having the effusion take place on the entire scalp; it will break down, form a crust or scab, covering the head like a mask, called *crustæ lactea*; when there are fever patches, and widely scattered, *impetigo sparsa*.

Treatment of ecthyma and impetigo should be conducted by attention to stomach, liver, skin; the best of diet, as the condition points not only to diseased blood, but that fluid is poor in its vital elements. Bathing, hygiene, fresh air; tonics, as cinchona and nitromuriatic acid, or aromatic sulphuric acid, before meals; and two hours after meals, an alterative, such as compound saxifraga ozonized, glycerite of ozone, or ozone-water. If the lymph has not broke down, ozone ointment; if it has broke down, conium baths; remove scab or incrustation with poultices, and follow with any of the following ointments: ozone ointment, sulphuric acid ointment, vaseline, and iodoform.

Keep part carefully excluded from the atmosphere. Case rapidly recovers.

PARASITICI.

The term *tinea*, meaning a gnawing or destructive worm, is applied to a class of cutaneous diseases which are due to the presence of parasite plants; all are contagious.

(1.) **Tinea Tonsurans.**—From tonsure, to shave; because of the brittleness of the affected hairs. The parasite here is the *trichophyton tonsurans*, or ringworm, the sporules and mycelium of which infiltrate the texture of each hair, while they

also spread among the epithelial scales. Ringworm, no matter what part of the body is affected, is essentially a localized eczema, produced by a local cause. The local cause, in all cases, is a microscopic fungus, which has a peculiar affinity for the epidermic structures of man and some animals. There may be changes in appearance, or it may look different in one locality from what it does in another; but these changes are not in the plant, or fungus, but in the structure of the skin in which it is deposited, being simply anatomical differences of structure; the parasite is the same in all cases. It is pre-eminently contagious; so much so, that if an affected child be admitted in a school, all the other children may become similarly affected. If not acquired in that manner, the mycelia, or seeds, or spores, being so light, can be wafted great distances through the air; or it can be carried by domestic animals, as cats and dogs; or by books, clothes, and deposited upon the skin; and if the soil is favorable, that is, if vitality is low in the individual on which it is deposited, and if there be sufficient warmth and moisture, it commences to grow. If so, it passes between the horny cells of the epidermis, and finds its way into deeper layers, where, by the irritation of the more organized cells, it sets up a condition of congestion—first a red spot, then the formation of a ring of inflammatory papules—a true eczema; and the circle widens with the growth of the fungus. As the ring spreads, the redness in the centre entirely disappears; and in consequence of some obstruction or interference with the growth of the cells, a brawny desquamation will be observed on the surface. If the parts are hairy, the hair follicle becomes diseased by extension of the sporules, and its nutrition being injured, it dies, breaks off. Like all other vegetable plants, it may die if adverse conditions bear upon it, as a deficiency of warmth, moisture, etc. Ringworm is likely to pass into one or other of two conditions: it may become pustular, or it may become dry and squamous.

Pustular ringworm on the scalp is a most important stage of the disease to recognize. It passes by the name of *tinca capitis*, and may assume either a deep or superficial form. If superficial, the appearance is that of pustules at the mouths of the hair follicles, which mature and burst, and the pus of which is loaded with spores, comes in contact with sound skin and gives rise to a new and fresh crop, and in this way the entire head becomes a living, growing, fungous mass. As the pus dries, large, yellowish scabs are formed, from beneath which pus exudes. When the scabs are removed, some of the short, broken hairs come away with them, and small bald places are left as a result. In the deeper-seated variety the pus is formed in the substance of the follicle, and, as it passes to the surface

through the neck of it, it mixes with the sebaceous matter, and thus becomes much thinner than ordinary pus. The effect of inflammation in the follicle is to cause the part to become raised and tender, and to have the appearance of a subcutaneous abscess.

Squamous ringworm, the other variety, is the commonest and most chronic form of the disease. Met with in small, localized patches, of variable size; sometimes isolated, in other cases widely diffused, spreading round the body, and exhibiting all forms of eczema. In some cases it will die from some adverse condition and disappear, leaving nothing but a dry scale. The localized patches are easily recognized, resembling badly executed tonsures, by reason of being covered with short, broken hairs. When widely diffused or disseminated, the true disease is often overlooked and treated as eczema, and when so managed will last for years.

The class of persons most affected with ringworm are the unhealthy, and especially children, who are more prone to its attacks than adults. The character of the vitality of the skin and hair has much to do with it. Children or adults with black or dark-brown hair and dark eyes, have a thick epidermis, and seldom suffer from ringworm; whereas those with light hair and and light-blue eyes, have a thin epidermis, take it easily, and suffer from it severely.

Treatment.—The essence of sound treatment here is the destruction and removal of this vegetable growth. How can this best be done or effected? Mechanically and chemically. Of the mechanical method, it is neither justifiable nor necessary. Of the chemical, it consists in the application of such agents as sulphur, iodine, ozone, carbolic acid, zinc, citrine ointment, acetic acid—remedies antagonistic to the growth of the vegetable organisms known as parasiticoïdes. Some of the above have some objectionable properties in exciting irritation, coagulating the surface, and not penetrating to the roots of the fungus. Now, what we want is a parasiticide, and not in the least possible way an irritant. Seeking for such an antiseptic, one that will cause no irritation, we select as a base vaseline, the gelatum of petrolei, which is of the consistency of butter, free from odor, and never becomes rancid, and is compatible with all known antiseptics, and is very much superior to all oils, fats, cerates, or ointments. Add to vaseline such antiseptics as thymol, menthol, borax, and we have an invaluable, extremely efficacious remedy. Thymol is a camphoraceous body, belonging to the class of aromatic compounds, and is present in small quantities in the oil of thyme, but chiefly obtained from the seeds of the *ptycholisajowam*. It is a powerful antiseptic, being nearly ten times more efficacious in destroying

bacteria than carbolic acid, and is not an irritant to the skin. Menthol, which is obtained from the Japanese peppermint, is nearly as powerful. Either of the two added to vaseline makes an efficacious application.

In old chronic cases in adults, the fungus will have penetrated away down deep in the skin; it is then necessary to add a drug that will carry the thymol down to the roots. No drug but chloroform can carry the thymol, or antiseptic, down to the deepest roots of the cryptogam; so we rub in chloroform, olive oil, and thymol, morning and night, and keep the vaseline applied at other times, day and night. In this way the fungus is killed at its root. The ozone ointment, or the vaseline and thymol or menthol are admirably adapted to children. In addition, great attention to cleanliness. Improvement of the general health, by generous diet and tonics.

(2.) **Tinea Favosa.**—From *favus*, a honeycomb. Is very rare; commonly affects the scalp, in the form of small cup-shaped, dry, yellow crusts, each crust containing a hair in the centre, and resembling a honeycomb; attended with severe itching; hairs become brittle and fall out; crusts have a mouldy and offensive odor, and are often surrounded with lice. The cryptogamic parasite here is the *achorion schonleini*.

(4.) **Tinea Sycosis.**—To become like a fig, or, barber's itch. The parasite is *microsporon mentagraphyte*, which causes inflammation of the hair follicles, at the same time acquiring greater growth in the devitalized tissue. The growth of the parasite resembles the eruption of small acuminate pustules, which have a granulated appearance and resemble the substance of a fig. The chin and beard are the favorite locations.

Treatment.—In the above three forms, a general alterative and tonic course, with the best of diet, and attention to cleanliness. Before the application of the antiseptic designed to destroy, all hairs should either be removed or cut short, and poultices applied, so as to remove all scabs or incrustations, and then the parasiticide applied, which should be kept constantly on, day and night; changed at least thrice daily, and the dressings destroyed. Any of the following will answer: ozone ointment, citrine ointment, iodide of sulphur ointment, ammoniated mercury, and sulphur ointment. Keep applied closely to exclude oxygen.

(6.) **Tinea Versicolor.**—To change color. The *microsporon furfur* is a cryptogamic plant which inhabits the pigmentary gland of the Caucasian. It is of a yellow color, usually makes its appearance on the front of the chest or abdomen; from thence, in warm weather, it will grow in beautiful mottled or copper-colored patches, and spread over the entire body; in winter, it contracts and often disappears. In some rare

cases the cuticle over it becomes covered with brawny scales. Although this gland in the white race is dormant, nevertheless this parasite seems to make it its habitation, and, hidden in its recesses below the cuticle, it is difficult to reach with antiseptics, unless weakened by a warm alkaline bran-bath, or Turkish bath, and followed with lotions of sulphurous acid, and then freely smeared over with ozone ointment, or menthol and vaseline, or chloroform, olive oil, and thymol. The clothing of patient should be soaked in lime-water, or weak sulphurous acid water, so as to destroy spores of the fungus.

PAPULÆ.

In erythema, roseola, eczema, dependent upon mal-nutrition and the change of normal living matter into bacteria, and in erysipelas, boils, etc., we can give no satisfactory reason for the change or aggregation of the bacteria into such varied forms; nor can we assign a reason why they take the follicles of skin, or why those terrible germs, syphilis and tubercula, will also seek the follicles and form a papula.

(1.) **Lichen.**—A lichen, or papular affection of the skin, with minute, hard, red elevations, either distinct or scattered in clusters, with a tingling irritation, and slight desquamation. The contents of the follicle are usually bacteria, with, in some cases, a fungus, for both can be seen under the microscope. A common idea is, that it is a hair follicle, in which the inflammation takes place, into which both fungus and bacteria are localized; but this is not correct, for we find follicular disease most frequently attacks regions of the body devoid of hair. The following embraces the principal forms:

(1.) *Lichen Scrofulous*, or tooth rash, or red gum rash; peculiar to infants and young children, may appear on any part of the body. It is caused by derangement of stomach and bowels, and is characterized by an eruption of minute, hard, red, clustered or scattered pimples.

(2.) *Lichen Simple.*—Cause, malassimilation and bacteria; eruption red, inflamed papulæ on face, arms, legs and body. There is itching, tingling and fever; in spring and fall will probably return.

(3.) *Lichen Pilaris*, or hair lichen, appears at the roots of the hair in young persons, about puberty; involves the hair sac and root sheath. The general cause is want of cleanliness, mal-nutrition, use of alcoholic drinks.

(4.) *Lichen Circumscriptus*, or clustered lichen; patches of papulæ with well-defined margins, and irregular circular form. The eruption consists of rings and small groups of papulæ, which tend to spread at their circumference into rings, the

papules forming a bright, well-defined margin, while the skin in centre is yellow, owing to spores of a fungus.

(5.) *Lichen Agrius*, or wild lichen. Usually a severe form; rigors, nausea, fever, slight erythema, with the papulæ upon the inflamed base. In a short time inflammation subsides; skin peels off; papulæ exhibit intense itching, tingling; their points become scratched or rubbed off, and cracks or fissures form, which are painful, and discharge a sero-purulent fluid.

(6.) *Lichen Lividus*.—When the eruption has a purple, or livid hue, and is not accompanied with fever.

(7.) *Lichen Solaris*, or prickly heat; due to exposure to heat, before system has become acclimatized.

(8.) *Lichen Urticatus*, or nettle lichen. Skin presents the appearance of wheals, like those produced by bugs, gnats, mosquitoes, etc. The wheals subside, and leave papulæ, with itching, pricking, tingling.

Treatment.—Emetic; alcoholic vapor-bath, or tepid alkaline bath; salines to move the bowels; control fever with aconite and compound serpentaria tincture. When fever abates, plain, nourishing food and alteratives and tonics.

To the skin, if not too extensive, ozone ointment; if extensive, emulsion of olive oil and thymol, or menthol, over entire body. Dissolve the latter in the oil by gentle heat, and apply thrice daily. Vaseline is also excellent.

In the purple form, diet very rich and generous, and chiefly tonics. The character of our drinking water at certain seasons has much to do with the production of lichen.

The mercurial, syphilitic, and tubercular forms, treated with special remedies laid down under said diseases.

(2.) **Prurigo.**—This is a very small papular affection; papulæ or pimples about the size of the points or heads of pins. The eruption usually causes great discomfort and itching, although this latter symptom may not be present in any great degree.

Like lichen, it is divided into a number of varieties, as *prurigo mitis*, the mildest form; *prurigo formicans*, where the itching is compared to that of insects moving under the skin, as creeping of ants; *prurigo senilis*, when it occurs in elderly people suffering from indigestion.

Cause, in all cases, malnutrition, certain articles of diet, as buckwheat, salt fish, pork, sameness of food, etc., etc.

Treatment.—Precisely the same as for eczema and lichen. Alteratives and tonics; locally, alkaline baths, conium bath, sulphur bath. Application of vinegar, lime-water, infusion of conium and soda; olive oil, with menthol or thymol, morning and night.

SQUAMOUS, OR SCALY.

In the scaly skin affections, although they depend for their origin upon great constitutional defect, some germinal poison in the blood, we have, besides, to contend with altered nutrition of the skin, from defective organization of that structure, such as we have in lepra or psoriasis, where the nerve-power or life-power of the skin is insufficient to sustain abnormal function, and there is much capillary congestion, which constitutes a part of the disease. Again, in pityriasis and ichthyosis, with a starved condition of the skin, as far as nutrition is concerned, we have excessive exfoliation in the shape of scales.

True Eastern leprosy is a disease unknown in any portion of this country. We may witness bad cases of psoriasis or lepra, but nothing genuine. The reason of this is probably due to the fact that fresh variated diet is abundant, and that there is no cause operating to depress the nerve vitality to such a low pitch; for there can be little doubt but that terrible disease is due to want of proper food, to repeated attacks of malarial fever, diseased food, and other agencies that destroy nerve vitality.

(1.) Lepra, or Psoriasis.—Some are disposed to call it lepra when the eruption appears on arms and legs, and psoriasis when it occurs on the body; a distinction uncalled for. This is without a doubt the most intractable of all curable diseases of the skin. It is a non-contagious, squamous eruption, consisting of red and scaly circular patches, of various dimensions, scattered over different parts of the body. Most frequently met with near joints, as the knee and elbow. By degrees, patches increase in size and number, and extend over the entire body. It is an affection dependent on depression of the vital forces, with diseased blood, and enervation of the skin. In well-marked cases the nails become corrugated or grooved, and there is iritis. Different names are applied to it, according to its characteristic appearance. When the patches are of moderate size, round, and reddish, and covered with thin, white scales, it is called *lepra vulgaris*; when the eruption is small, white, and of long-standing, it is termed *lepra alphoides*; when it is copper-colored, *lepra syphilitica*.

Treatment.—Attention to appetite, bowels, and skin; to the latter the bran-bath is most salutary; diet to be very generous and rich; persistent use of alteratives and tonics, watching their action, and changing frequently. Local remedies are not of much use; still, good results are to be obtained from chrysophanic acid, one drachm to the ounce of vaseline, rubbed into the eruption after the bath, which acts both internally and locally.

(2.) **Pityriasis.**—Dandruff. A chronic, non-contagious, squamous inflammation of the skin of parts usually covered with hair; characterized by the exfoliation of minute white scales or scurf in great quantity. In some cases the skin is a pale, doughy, white; in others there is redness, heat, burning; in both the desquamation takes place copiously and incessantly for many months or years. It is either dependent on or caused by worry, study, nervous depression, or some malnutrition or blood poison. When the head is affected, it is called *pityriasis capitis*; when the skin is red and much irritation, *pityriasis rubra*; when brown or copper-colored, it may be due to the fungus *tinea versicolor*, or liver spot.

Treatment.—Remove the worry, the nervous depression; build up general health with best of diet and tonics; general alteratives. The head should be washed daily with warm borax-water and glycerine, or conium bath, or glycerine and lime-water, and during the intervals of every two hours one of the following, to be used as a hair dressing: cantharides and lobelia, borax and glycerine.

(3.) **Ichthyosis.**—Fish-skin disease. A very rare, non-contagious disease of the skin, in which the affected part looks like the scales of a fish. This starved condition of skin is generally congenital, and usually met with on the legs. On the body, patches of thick, hard, dry, lumbricated scales, of a dirty-gray color, are frequently met with. As a general rule, there is no pain, heat, or itching. The scales, in some cases, are large, lapping over each other, and give rise to an unsightly appearance.

Treatment.—Alteratives and tonics, with the best of support. Locally, the alkaline bran-bath daily; then drying, keeping the affected part covered with olive, neat's-foot, or cod-liver oil, week about.

TUBERCULÆ.

Under this head we enumerate a variety of states, in which the germ tubercle is effused in and on the skin.

(1.) **Acne.**—A chronic tubercular skin affection, the seat of which is in the sebaceous follicles, characterized by small, isolated pustules, with deep red bases. These pustules often suppurate and burst, leaving minute and hard tumors.

Causes.—The diathesis tuberculæ, and the sebaceous glands, overworked in the process of eliminating fatty, cheesy, or other matter, take on inflammation, with its result, effusion of lymph. In other words, they are forced to do the work of other glands, as the liver, skin; besides insufficient food, functional derangement, excessive alcoholism.

Symptoms.—There is always a torpid liver, inertia of sexual organs, etc., which give rise to headache, constipation, coated

tongue, general languor, with the pimples on nose, face, back, or wherever sebaceous glands are numerous. It is, with propriety, divided into two kinds, *acne simplex* and *acne indurata*. In the former, simply inflammation, in the latter, the inflammation has terminated in effusion of lymph, thickening induration, which is so common about and after puberty in both young men and women; most common on nose, face; and the second form, *acne rosacea*, which is common on the nose and cheek of persons who drink either alcoholic or malt liquors. The action of the whisky daily upon the liver retards its working faculty; it fails to eliminate freely carbonaceous or fatty matter, and the sebaceous glands of the skin are compelled to do its work; and those being most numerous on the nose and cheek, are not only overwrought, exhausted, but suffer from inflammation, effusion of lymph, hypertrophy, and enlargement, so that the nose is not only red, but greatly increased in size, and nodulated.

Treatment.—In the first class of cases, the liver, skin, and sexual organs must be seen to: cascara to keep bowels regular; daily alkaline bathing; and seminal emissions or leakages seen to; masturbation prohibited; in women, the uterine functions looked after. A general alterative and tonic course is indispensable. The face at night to be rubbed over with ozone ointment, and not wiped off, which will destroy the bacteria around the follicles. If a change is desirable, iodide of sulphur ointment.

In *acne rosacea* there must be strict avoidance of all alcoholic drinks; liver acted on freely with cascara; an alterative and tonic course for some months; and every night at bedtime nose to be encased in one or other of the following ointments: ozone, sulphur, muriate of ammonia, iodide of potass, iodide of sulphur. Or, better still, the following lotion: take six ounces of lime-water, half an ounce of glycerine, the same quantity of flowers of sulphur, and also of the tincture of sulphur. Mix. Saturate lint and apply, keeping it wet.

(2.) **Lupus.**—A most destructive skin disease, commencing in a deposit or effusion of the tubercular germ from the blood on the skin, generally at or near the alea of the nose, or face. It is like its great mother, tubercle, serpiginous in shape, and penetrates and grows in the perivascular spaces.

Causes.—Tuberculæ; strong tubercular diathesis; vital force greatly, nay, vitally deteriorated, so much so that there is a true condition of human rot; so that besides the germ tubercle, the micrococci of the *oidium albicans* are in great abundance. Those micrococci are found in the dry nodules as well as in the ulcerating, and their roots spread everywhere, to skin, hair follicles, connective tissue, sweat-ducts, small vessels—luxuriant

crops of those mycelia. Irritation is simply a local exciting cause.

Symptoms.—Begins with the effusion of one or more spherical, indolent, soft, dull-red tubercles, which dry up and scale off, heal up, leave a scar, and then a recurrence again and again, and latterly they soften and ulcerate; nothing of a syphilitic or cancerous nature in or about it; free from pain; generally on face; middle-aged most obnoxious to it; and women its chief victims. When the tubercular germ is effused, dries up, becomes covered with scales, peeling off and re-forming, it is called *lupus non excedens*, and this term is applied even if it spreads widely, superficially, so long as it does not ulcerate. When it ulcerates it is called *lupus excedens*. When this takes place, it is most destructive, eats rapidly; the germ burrows into the nose and cheek, and causes dreadful ravages. It may exist on different parts of the body at the same time. General health greatly deteriorated.

Treatment.—The liver to be kept active with cascara; skin stimulated by daily baths; most nourishing diet; and exercise in open air; tonics, as quinine, compound cinchona, and mineral acids, glycerite of ozone, and kephaline; and alteratives, as plytolacca, stillingia, and iodide of potass.

Iodine is most inimical to the germ tubercle and the micrococci of the oidium albicans; the pure iodine, combined with starch, so as to prevent it irritating the stomach. The following is the way to prepare the iodide of starch: Take twenty-five grains of pure iodine, place it in a mortar, triturate, first by adding a few drops of water to the iodine, and then gradually add one ounce of starch, and continue the trituration till the compound assumes a uniform blue color, so deep as to approach a black. It should be dried at a very gentle heat, so as to run no risk in driving off the iodine, and kept in a well-stoppered bottle. No alcohol to be added. The dose is one teaspoonful in water, or gruel, thrice daily, and increased if no irritation of the stomach is produced. Without a doubt the above is most efficacious. Glycerite of ozone ranks next, which acts in the same way, but has a more constructive effect on the nervous system, and prevents more degradation of bioplasm from taking place. The chloride of gold and platinum are feeble remedies in the destruction of germs and are of no real value in lupus.

As long as there is no eating or ulceration, keep on the tubercle ozone ointment, and depend on constitutional treatment. If eating or ulceration sets in, it must be at once destroyed with either the chloride of chromium or the chloride of gold et soda. If the latter is used, it should be prepared as follows: Take sixty grains of chloride of gold et soda, and add to it half an ounce of C. P. nitric acid, and use by means of a brush; follow

with poultices of yeast and linseed; change frequently; wash with the ozone et chlorine fluid, same strength as for catarrh; and, if there is any evidence of eating, follow with the gold caustics. The roots of the germs often penetrate in every direction, so that it is impossible to lay down rules for the caustic. When a good healthy sore is established, heal with ozone ointment or black salve; continue treatment some months after case is well. Another method of treatment consists in scraping the tubercular germ off the skin with a sharp spoon, dressing with finely-powdered iodoform, keep dry with pressure. This is pretty successful, as the iodoform penetrates deep to the roots of the tubercle.

(3.) **Keloid.**—Consists of flat, tender, leathery excrescences on the skin, one or two inches in diameter, or in vertical streaks elevated above the skin. They have a great resemblance to the cicatrix of a burn, and often form on cicatrices. There may be only one, or several, or a large patch on skin of forehead, breast, arms, or any part of the surface. They come slowly, rarely ulcerate, remain an indefinite period, and in some cases disappear spontaneously, merely leaving a cicatrix.

Same treatment as for lupus.

(4.) **Elephantiasis.**—So-called, because in the hypertrophy that takes place, the skin assumes the appearance of that of an elephant. There is usually great hardness severe pain, and thickening. There is always great swelling and induration of the true skin and derma, and involves the areolar tissue, causing great deformity. Usually attacks the lower extremities, the swelling being so great that the limb is nearly double its usual size. It often attacks the scrotum.

The treatment for lupus may be tried, but, as a rule, no remedies of any avail.

(5.) **Molluscum.**—A rare form of skin disease, consisting of small tumors formed by an enlarged sebaceous gland. Have a depressed spot in their centre; vary in size from a pea to a pigeon's egg; of a brown color, with a broad base or narrow pedicle; said to be contagious; common in infants and children. If pedicle is narrow, they can be snipped off. Alterative treatment.

(6.) **Frambasia.**—Without any precursory symptoms; skin of face, scalp, axillæ, or genital organs are covered with small dusky red spots, which gradually become converted into large tubercles, isolated at summits, but collected together at bases, and resembling strawberries or mulberries in color and form; tubercles generally hard, covered with dry scales, and sometimes inflamed. If inflammation spreads, ulceration sets in; a yellow sanious discharge resulting, which forms scabs. Disease continues for years.

(7.) **Vitiligo.**—A veal-like appearance of the skin, slightly raised and hard. It may occur in patches, or in isolated tubercles.

(8.) **Leucoderma.**—In which patches of the skin is rendered white. It is a disease of the pigmentary gland, and common among races who have an active pigmentary structure as the negro.

BURNS, SCALDS.

The degree of heat that can be borne by the human body without causing injury, depends very much upon the medium through which it is applied, as well as the organization of the individual. The degree of partial death inflicted upon the body, may be embraced under three grades, as *erythema*, *vesication*, *ulceration*.

The danger of burns depends a good deal on their intensity; the extent of surface injured; the degree of disorganization; the importance of the part, the age, and power of vital resistance of the patient.

Symptoms.—There is the shock; state of prostration or collapse, which is often dangerous. The pallor, coldness, sighing respiration, shivering, feebleness of pulse, and other indications of imperfect reaction and exhaustion, followed by fever with congestion or effusion in or upon brain, lungs, bowels; or it may be reflex, and produce spasms, convulsions, or there may be the tedious, dragging symptom of hectic during the stage of cicatrization or otherwise. Besides the above, the arrest of the insensible perspiration of skin naturally gives rise to a tendency to serous effusion in one or all of the three great cavities, and if the burn partakes of the character of a blister, there are grave changes that take place in the blood, especially if the blister is extensive. The serum in the blister is found not to be water from the blood, but rich fibrinous liquor sanguinis—and this exudation of blood plasma causes the blood to be thicker, more concentrated, and its relative proportions of corpuscles and plasma modified to even a fatal extent. This concentration of the blood reduces the blood pressure, and retards the flow of lymph, and interferes with the general nutrition of the part.

Treatment.—The first point is to bring about reaction by diffusible stimulants and artificial heat to the extremities. After reaction, open bowels with castor oil, or cascara. If reaction is imperfect then administer aconite and serpentaria for fever. If there are reflex symptoms, as spasm, antispasmodics by mouth and rectum, followed by bromide of potass and calabar bean. Pain must be relieved with hyoscyamus and opium. Repeat until comfortable. Any congestion of brain, lungs, bowels, to be treated on general principles. If tonics

are required, let them be cinchona and ammonia. Give plenty of fluid nourishment, as milk, beef tea, raw eggs, juice of raw beef, or raw beef extracts. In all cases relieve pain and nervous irritability.

Locally, to burns, nothing can excel the carbolic acid and olive oil; one ounce of the acid to six or ten of the oil, according to age and thickness of skin. It stimulates, destroys micro-organism, and aids healing; saturate lint and apply. Any application that will exclude air from the injured surface should be applied until this is procured; as molasses, lard, and flour, vinegar or starch, and white oxide of zinc and oil. In burns of the second degree (blisters) do not puncture nor interfere with the cuticle. The great danger of burns in this stage is due to the amount of liquor sanguinis in the blister, and death is due to the blood changes so induced in that fluid. This, of course, is best remedied by the juice of meat. The dressing in all cases should be changed thrice daily, and precautions taken against deformity.

CHILBLAIN OR FROST-BITE.

The degree of cold that can be borne by the human body before freezing depends a good deal on the medium through which it is applied, (dry or moist), and the power of vital resistance in the individual. The exposed portions, as nose, ears, hands, feet, are most obnoxious to it, chiefly on account of their feeble circulation; and the feet are peculiarly prone to frost-bite, if sweaty or damp. This is one reason why it is so common in hired girls, who sleep in attics, and mostly sleep with their damp stockings on. A chilblain may be defined to be a subacute inflammatory swelling, due to cold, and the premature restoration of the circulation by heat.

Symptoms.—Burning, tingling, throbbing in the affected part, with swelling, redness, and itching. There may be vesication or ulceration and sloughing, in all respects similar to a burn.

Treatment.—Frozen parts to be thawed gradually by rubbing with snow, or ice, in a cold room, without fire, and stimulants administered internally so as to get them to thaw from within outwards; and for some time the parts should not be exposed to heat. The carbolic acid and olive oil, same as in burns, may be used here with good results; or ozone ointment, black salve, or lime liniment.

To prevent frost-bite, a high standard of health; very nourishing food; tonics; fire in bed-rooms; avoid wearing damp stockings, either during day or night; tight shoes; and proper protection or covering for exposed parts. Our highly oxygenized, dry atmosphere, with its crisp feel, is not nearly so pro-

ductive of frost-bite below 0° as that which is humid and moist, with the oxygen greatly diminished.

BOILS, OR CARBUNCLES.

A boil is an oil-gland of the skin that has become filled with lymph, loaded with the micro-organism bacteria. The cause is malnutrition, derangement of stomach and bowels, and a degradation of normal living matter into bacteria, which pass into the blood and find their way into the oil-glands of the skin, probably in search of free oxygen. The cause of the malassimilation may be overcrowding, bad ventilation, filth, bad diet, as pork, meagre, or insufficient or sameness of food, indeed, anything that depresses the stomach.

Symptoms.—Brown-coated tongue; nausea; loathing of food; constipation; fetid breath; heats and colds; fever, with headache and languor; inflammation of an oil-gland on nape of neck, back, limbs, or anywhere where that class of glands are numerous; gland fills up with lymph and bacteria, and resembles a sugar loaf, apex pointing inwards, and broad base on surface; vary in size from a pea to a large pear; the largest are usually met with on back. The gland is a regular cyst or sac, whose lining membrane is a secreting one. By proper treatment, before lymph breaks down, they may disappear; but if they progress, lymph breaks down, patient has a rigor, then throbbing, and suppuration goes on until either relieved by nature or art. In some cases there is a large crop, great constitutional disturbance, and danger; in other cases, a solitary one may create quite alarming symptoms.

Treatment.—Emetic of lobelia; alcoholic sweat; free action of bowels, with compound powder of mandrake and cream of tartar, followed with compound tincture cinchona and nitromuriatic acid, and aromatic sulphuric acid. Continue those drugs right along. If case is obstinate, alteratives, with iodide of potass. Locally, if there is no yellow speck over boil, no softening or other indications of pus, and the patient is desirous of preventing an abscess, then destroy the bacteria in the sac, and cause a solvent or discutient action on the lymph by applying either the ozonized clay or the extract of belladonna, made into a paste with chloroform. Change fresh every three hours, and keep applied with firm compression.

If there is the slightest speck or dot of softening, such treatment must not be thought of. There are two plans that present themselves now. It must be borne in mind that it is a regular sugar-loaf cone, and that for a perfect cure, the sac, with its contents must be thrown off; that is the core.

First method: Cut a hole in a piece of adhesive plaster the size of the boil, then warm and apply closely to the skin, hav-

ing the base of the boil in the orifice of the plaster; wipe dry. Then take a stick of caustic potassa and apply, burning down into the substance of boil. It is well to do it thoroughly. Then neutralize the action of caustic with vinegar, and poultice until core is thrown off, then heal with ozone ointment or black salve.

Second plan: Make a crucial incision down through the boil, and divide it into four parts; then poultice until core is thrown, and treat as above. It must be borne in mind that the matter of a boil is contagious, and liable to contaminate sound parts, or others; hence all dressing should be disinfected or destroyed.

The diet in boils should be the best, and very generous, including beef, mutton, poultry, eggs, milk, white-fish boiled, with abundance of vegetables and fruit. Numerous other very successful methods of treatment might be suggested, but the above will suffice. Any good, reliable remedy that will correct the indigestion and destroy bacteria, can always be used with advantage.

ALOPECIA, OR BALDNESS.

Loss of hair on the scalp, or eyebrows, or pubes, may be either temporary or permanent. The baldness may be due to a variety of causes. Tinea tonsurans, or ringworm, may insidiously produce a bald patch, and after a time the hair may grow again. We might see the cryptogams or we might not, or the condition might co-exist with baldness, dependent on cutaneous neurosis; or it might depend on a lesion of nerve-function, which takes a form of disturbance of nutrition, of the formation, and reproduction of hair. In this case there is apt to be tingling pain before the baldness appears, and afterwards loss of sensation in the patch. The diseased hairs under the microscope are atrophied, and of a lighter hue than natural. It may arise from neuralgia, or injury to a nerve; or it may arise from general debility, hæmorrhages, fevers, tuberculosis, syphilis. The hair follicles remain entire, but inactive. The above cases generally curable if cause can be removed. In old age, the case is different, because the hair follicles get destroyed, and there can be no more production. This supervenes upon general loss of power; the hair follicles participating in the general weakening of nutritive functions. Loss begins at crown of head, and temples, or forehead.

Treatment.—A general tonic course, with the removal of cause; quinine, iron, hydrastin, nux pill, cinchona, and mineral acids; very nourishing food. Scalp to be washed every day, rubbed gently, and shower-bath. Some of the following hair tonics used: lobelia, blood-root, cantharides, solution of ammonia, balsam of Peru, oil of rosemary, and marjorum. All failing, pursue a tonic and alterative course for a few months.

Other remedies sometimes successful: Hyperdermic injections of pilocarpine, one-third of a grain three times a week; or jaborandi internally, has a remarkable effect on the hair follicles in starting a new growth of hair. It need not be administered oftener than three times a week.

ULCERATION.

This consists in the progressive softening and disintegrating of successive layers of the affected tissue, and is a breach of continuity of surface, or a chasm in the part. Its causes are either unrepaid injuries or inflammation. Those most liable to it are the debilitated, the intemperate, the mercurial, tubercular, syphilitic; and the parts of the body most generally affected are those in which the circulation is languid, as the extremities. There are numerous varieties, designated from the appearances they present.

(1.) **Healthy Ulcer.**—In constitutions, or parts predisposed to it, the slightest irritation may be sufficient to excite ulceration. In the vigorous it requires more irritation; but when produced, it may be what is termed a healthy ulcer, and present a sore free from pain with a fine granulating surface, with smooth, white, milky edges, and its pus thick and creamy. A healthy sore is smooth, covered with a transparent pellicle, or scum, which is lost on the margins of the granulations.

Treatment.—In all ulcers or breaches of continuity we must recognize a degradation of healthy, living matter, or diseased germs. In a healthy sore we find nothing but the bacteria, and those in very small numbers, so that it is important that all dressings exclude air completely, be somewhat stimulating, and invariably antiseptic. Vaseline, or ozone ointment, or black salve, should therefore be kept constantly applied, spread on fine old linen or lint, about one-sixteenth of an inch thick, a little larger than the sore, changed twice or thrice daily. The dressing on each occasion to be fresh. Before any dressing is applied, the limb should be bandaged from the extremity up, leaving a space for the application of the ointment, and over and above that a few turns of the bandage.

The limb should, if possible, be kept at rest, and in an elevated position. The constitutional treatment required here is tonics, cinchona, and a liberal, generous blood-forming food.

(2.) **Inflamed or Irritable Ulcer.**—This term is applied to an ulcer when it is hot, tender, very red and painful; bleeds easily, and the discharge is thin, irritating; in some cases foul and copious, and heavily loaded with bacteria.

The cause of this is some malassimilation, perverted nutrition, or derangement of the general health.

The treatment should consist in opening the bowels, correct-

ing the malnutrition with tonics, and plain, unstimulating food; in allaying pain with anodynes. After a free action of the bowels, the sore might be stimulated with lime-water and tincture of iodine lotion, or permanganate potass lotion; whichever is applied must be of sufficient strength, and kept constantly moist by a frequent application of the lotion, and a covering of oiled silk. It is likely this will be sufficient to exhaust the irritability, and reduce it to a simple ulcer. If not, it may be necessary to brush it over with nitric acid, poultice for a week, then use the lotions, and follow with vaseline or ozone ointment. In all cases the limb to be bandaged from extremity up; rest and elevation maintained. In all cases of irritable ulcer, a perfect freedom from pain must be obtained, an active alterative and tonic course pursued, with good food.

(3.) Indolent, or Chronic Ulcer.—Old ulcers of ten or twenty years standing have generally a smooth, uneven surface, of a pale ashy color, like a mucous membrane. In some cases it may display a crop of weak fungous granulations. The edges are raised, thick, white, insensible, either inverted or everted; discharge scanty and thin, and contains a few bacteria. Those ulcers may remain stationary for years, or take on an attack of irritability, and become inflamed; or may heal, and then suddenly give way. An irritation in the body existing for years, gives rise to a cachexia, which is essentially tuberculæ.

Treatment.—Before interfering at all with the ulcer, the patient should be placed upon a very active alterative and tonic treatment, with a varied diet, rich in blood elements, for a month or two. If the patient is feeble, the stramonium ointment and iodide of potass should be applied to the ulcer to soften and absorb the granulations and indurated edges. If he is more vigorous, the ozonized clay should be applied between fine muslin, and when it becomes dry re-moistened and re-applied, or else a fresh application. This will make quick work of destroying or softening it down, and stimulate it into activity. A poultice of wood-ashes, caustic potass, are valuable, but severe in their action, the object in view being to bring the ulcer into a healthy condition. When this is effected, the black salve, vaseline, or ozone ointment should be used as a dressing.

If not successful, apply the irritating plaster, same size as the ulcer on the opposite side of the limb; with it keep an open sore till the old one is thoroughly healed. This latter will heal readily. Above all things, push constitutional treatment and good food; bandage, elevation, rest, not to be overlooked.

(4.) Tubercular Ulcer.—These are generally met with in the neck, axilla, groin. They consist of an aggregation of tubercular germs in a chain of lymphatics—two, three, or more; the

tubercles grow, first albuminous, then milky, cheesy, and latterly calcareous—generally form several points which excite inflammation of cellular tissue, skin, giving rise to numerous openings, through which the curdy or cheesy matter exudes. Those perforations communicate below with each other and form ugly puckered cicatrices on the neck or elsewhere, when they discharge and heal up.

In all cases general treatment for tuberculosis. At whatever stage seen, the clay during the day, several days in the week; black salve, ozone, or vaseline ointment at other times. If seen before skin breaks, the clay annihilates the germ colony. It should always be applied between cloths, so as to prevent gritty particles getting into ulcers or skin. Diet of the best.

(5.) **Varicose Ulcer.**—An ulcer dependent upon a varicose condition of the veins of the limb. The consequent venous congestion weakens the already debilitated parts, and renders them prone to ulceration. The ulcers are generally three or four in number, situated above the ankle. Oval in shape, indolent in their progress, neither extensive nor deep, but attended with considerable pain of an aching character.

Treatment.—Get the general health into good order by tonics and alteratives, with abundance of good food and fresh air. Keep bowels regular, and attend to the skin by daily sponging. The internal and local exhibition of the witch-hazel to tone up the veins; an infusion answers the purpose. The patient should wear an elastic stocking or bandage during the day. Before it is applied in the morning, limb to be bathed first with soap and water; then either tincture or infusion of witch-hazel applied; sore dressed with either black salve, vaseline or ozone ointment; over the dressing a piece of oiled silk; then an ordinary stocking, and, above all, the elastic stocking. The same should be repeated in the evening, but the elastic stocking need not be kept on during night, unless case is a very bad one. Infusion of oak bark, alcohol, and salt, and other remedies are of no importance when we have the witch-hazel.

(6.) **Fistulous Ulcer.**—Consists of a tube or narrow channel, lined by a false membrane, which is a secreting membrane, and which may, or may not, lead to a suppurating cavity. In old cases, the walls of the tube are dense and semi-cartilaginous. Fistula may be produced by a deep-seated abscess, not healed from the bottom, or by caries or necrosis of bone; or by the perforation of tissue by a mechanical irritant or obstruction.

Treatment.—If there are several openings, or fistulas, communicating with dead bone, it is folly to attempt to heal them. They should, if the parts permit, be run into one, so as to give nature as little labor as possible, in throwing off the dead bone.

If due to the imperfect healing of an abscess from the bottom, it should be either slit up, or injected with a strong solution of iodine and iodide of potass; or brushed over with nitric acid; if in or about the rectum, treat as laid down under that head, (*Fistula in Ano*.)

Phagedæna; Sloughing, or Eating Ulcer.—A state that is liable to be brought about in all ulcers by the use of mercury, the presence of syphilis, meagre, or insufficient food, bad diet, filth, poor ventilation, and insanitary states.

In addition to the ordinary bacteria of all ulcers, the *oidium albicans*, or rot, is developed on the ulcer. When a sore becomes so affected, its surface becomes irregular; in color, white, yellow, greenish, blackish; the discharge is bloody, serous, profuse or scanty, and the pain extreme; and by and by the sore becomes more painful, ragged, uneven; looks as if bitten out by the teeth of an animal, and is of a dusky, or livid aspect. There is apt to be fever and constitutional disturbance.

Treatment.—Very active measures must be taken to prevent the progress of the disease. Aconite and veratrum for fever; quinine, antiseptics, best of diet; attend to bowels, skin, and expose antiseptics in apartment. The ulcer should at once be destroyed with caustic potassa, followed by vinegar, and then dressed with antiseptic poultices, charcoal, yeast, wild indigo, and then antiseptic ointments. If the case does not warrant such extreme measures, apply the ozonized clay for twelve hours, and follow with same poultice and dressing. It must be laid down as an imperative rule, a perfect alleviation of pain with opium or morphia; for so long as we neglect this essential element the disease may occur again and again; the tendency to ulceration being in direct ratio to the pain.

(8.) **Hospital Gangrene.**—Is simply phagedæna, produced by overcrowding a large number of wounded men together. It is slightly more aggravated, being more highly contagious and infectious, than the former; and requires the same treatment, and if possible, isolation.

(9.) **Malignant Pustule (Anthrax).**—Becoming very common, from importation of foreign wool, hides; and the operatives in such are often fatally affected. It begins as a little dark red spot, with stinging or pricking pain, on which a vesicle and then a pustule, seated on a hard, inflamed base. When this is opened it is found to contain a slough as black as charcoal, which is a mass of giant bacteria. There are likely to be more than one, and to spread with rapidity, and the system become affected; or there may be systemic poisoning, first from the workers breathing in air loaded with the diseased germs. (See *Anthrax*.)

INFLAMMATION OF MATRIX OF NAILS.

Onychia, or inflammation of the root, or matrix of the nails, may arise from mechanical injuries, as contusions, spicula of bodies penetrating the mother of the nail, corns, etc.; or it may arise from greatly broken-down states of the constitution, as in tuberculosis.

Symptoms.—Pain, swelling, and suppuration at the root of nail or nails, and about the surrounding texture. Exudation of sanious, or purulent discharge, on pressure of the nail; ulceration; nail becomes raised and finally detached, revealing a foul ulcer, with the most intense fetor. The disease-germ, *oidium albicans*, is present,—a true rot. Ulcer becomes glazed, irritable, eating and spreading in all directions, even down to the bone, when the vital forces are at a low ebb.

Treatment.—Poultice with linseed and yeast; wash, by dripping hot permanganate of potass lotion on the ulcer, by compressing a sponge, morning and night. Remove nail as soon as possible; continue cleansing sore, morning and night, with permanganate wash. Dress during the day with either the black salve, vaseline, or ozone ointment, iodoform. Place patient upon a general course of alteratives and tonics with nourishing food, fresh air, hygiene, etc, when the difficulty can be traced to tuberculæ, glycerite of ozone especially; if to syphilis, ozonized phytolacca and iodide of potass; if to mercury, tonics and iodide of potass.

INGROWING TOE NAIL.

Owing to pressure and other causes, the margin of the nail presses into the flesh, and ulcer becomes covered with fleshy and sensitive granulations, which cause great suffering in walking.

Treatment.—The removal of pressure by well-adapted shoes or boots; nails to be cut square, instead of down on inner and outer sides; soak nail in warm soda-water daily; scrape centre of nail very thin, and introduce a pellet of cotton wool, so as to raise the edge of the nail and separate it from the ulcer. The pellet of cotton should be saturated with black salve.

SWEATY FEET AND HANDS.

Burning in feet and hands is indicative of debility. Sweating may be due to the same cause, even to paralysis of the sweat-glands. The very large percentage of sweaty feet, especially that with an odor, is due to the oil and sebaceous glands of the feet and hands being compelled to do the work of the liver; hence it is to be regarded as a symptom of inertia or disease of that gland. In ale, beer, and whisky drinkers, the sweat is

usually quite offensive, from the fact that it is pretty well loaded with bacteria; the socks and shoes being, after they are worn a short time, sources of contagion.

Treatment.—In nearly all cases of this kind, whether the secretion be acid or alkaline, the fluid of the sole of the foot is teeming with bacteria. The rapid development of bacteria in the sole, besides being due to the torpid liver, is favored by its location. An effective method of treatment is an avoidance of stimulants; keeping liver active; the bathing of the feet three times a day in borax-water; changing the socks twice daily. The bacteria are found very numerous in the damp or wet socks, and also in the leather of the shoe, so it is requisite every time the socks are removed, that they be immersed in an antiseptic lotion, as the borax; and also that the patient wear cork soles, and that these also be immersed over night in an antiseptic lotion, and another pair used the next day. The best plan is for the patient to have several pairs of such soles, and disinfect them every time they are used, so that they can be dried. In all cases, never use astringent washes, as they tend to make matters worse. Woollen socks should be worn in those cases.

FOOT DISEASE.

Domestic animals, particularly horses and cows, are often affected with fungus foot disease, a species of rot, in which is found the *oidium albicans*, the diphtheric disease-germ. Car-horses, in cities, during winter, where streets are salted, and cows kept on wet, undrained pastures, have each respectively the normal living matter of the hoof degraded into the diseased germ. It is apt to contaminate the milk, and cause diphtheria. Cleansing the hoof thoroughly, and washing with a solution of sulphate of iron or copper; then covering with tar; keeping the animal in a dry place.

Boys who are permitted to wade round low ditches and ponds, or wet ground, acquire the same disease between the toes. The ozone ointment is sufficient, applied twice a day, with shoes and stockings, and an avoidance of wet places. If this disease is not seen to in both animals and man, it eats and burrows into the soft parts of the foot. Very destructive, and highly contagious.

Besides these two common forms in man and beast, there is another destructive germ, called the mucedinous fungus, which eats its way into the small bones of the foot; eats, and burrows, and forms grooves, channels, fistulas, which become filled up with black, fungous masses. This variety is not common in our country.

As regards milch cows who have this disease, there can be produced the most incontrovertible evidence that the milk is

capable of giving rise to epidemics of diphtheria. The greatest possible precautions should be taken when the disease is seen to retain and destroy the milk for a few days, as the disease is easily got rid of by any efficient antiseptic; besides, animals with a fungus foot, walking over fresh pasture renders it unfit for other animals to subsist upon.

WARTS, CORNS, ETC.

The skin, without any condition of disease, may increase in length and breadth so as to form flaps or ridges.

(1.) **Warts, or Vegetations** are simply an increase of the papillæ and cuticle. The commonest variety is that met with on the hands of children, which consists of lengthened papillæ, each containing a vascular loop, and clothed with dry, hard cuticle. Another class consists of enlarged papillæ, clothed with a very thin cuticle, which come on the inside of the thighs, perinæum, and on the genital organs. Some are highly vascular, and bleed easily; some are pale, indolent, flat; others tall, and discharge a sour, irritating fluid.

Treatment.—The parts should be washed several times a day with borax and glycerine; and if they do not disappear, touch them daily with a mixture of equal parts of tincture of iron and muriatic acid, or chromic acid. Horny excrescences should be removed by the knife.

(2.) **Moles.**—Oblong patches of imperfectly organized skin, with black matter in its interstices. Small vascular patches and other congenital conditions, should be removed with chromic acid.

(3.) **Corns.**—These are simply growths of thick cuticle, not lying on the true skin like callosities, but penetrating into it. They are caused by friction or pressure of tight boots or shoes. There are two kinds, the hard and the soft. The hard is situated on the surface of the foot, where the cuticle can become dry and hard; the soft, between the toes, where the cuticle is soft and spongy.

Treatment.—Boots and shoes well adapted to the feet; feet to be bathed night and morning in soft water, or rendered soft by soda, well dried, and rubbed with glycerine.

To remove corns without a particle of pain, and within a short period, take salicylic acid, thirty grains; extract of *cannabis indica*, five grains; collodion, half an ounce. Mix. Apply with a camel's-hair pencil brush thrice daily.

Bunion.—A swelling over the metatarsal joint of the great toe. It is simply a bursal swelling, or thickened bursa, more or less inflamed and tender, with an increase of fluid. It should be treated by rest, alkaline fomentations, and keeping it painted over with collodion and tannic acid.

Malignant Ulceration at the ball of the great toe has almost disappeared since heroic doses of mercury have been discarded. It used to be frequently seen in mercurio-syphilitic patients. It is ushered in with intense nocturnal pain in the ball, then the parts become livid or deep-red, then a slight oozing, and latterly, a sort of gangrenous ulcer, with foul, ragged edges, and of a dark-purple color.

Treatment.—General alteratives, local antiseptics; pretty near the same treatment as for *Syphilis*.

CHAPPED HANDS.

Cracked, fissured, or chapped hands may be due to imperfect drying after washing; to the use of irritating substances, as certain dyes, soaps, clothing, cold, certain kinds of gloves, etc.

Treatment.—Washing hands carefully in tepid water, drying carefully, then rubbing in glycerine, and wearing a pair of old kid or leather gloves. Ozone, vaseline, and white oxide of zinc are excellent, especially the former. An ointment of spermaceti and balsam of Peru, or benzoate oxide of zinc is also of great efficacy, rubbed into the hand thrice daily, or simply applied at night, keeping hands encased in the gloves.

SCABIES, OR ITCH.

A contagious, troublesome skin disease, attended with great itching, which is increased by warmth. Commences as a papular, vesicular, or pustular eruption; vesicles or pustules ruptured by scratching, causing excoriation; generally met with on the finer portions of skin, as the inside of the fingers or abdomen. The cause is the *acarus scabiei*, a microscopical animal parasite, which infests the human body. The female is much larger than the male, and, after impregnation, she burrows herself beneath the skin, and forms a furrow or ditch, in which she lays her eggs. The males have itinerant habits, and wander about the surface of the skin. In bad cases, the entire body may be covered.

Treatment.—As it would be somewhat of an expensive cure to resort to vaseline, ozone ointment, glycerine, and oil of bergamot, or the like, which are destructive to the parasite, the cheapest plan is to take two or three pounds of common lard, deprive it of its salt, and stir into it as much sulphur as it will hold, still retaining its properties as an ointment. The patient being bathed all over with an alkaline wash, into which a handful of lobelia has been introduced, well dried, and the sulphur and lard well rubbed into every part of the body except the head. He must be put in a clean bed, and his contaminated clothes either fumigated with sulphur, or elsed washed with sulphurous acid water. This process is to be repeated

every night for three or more nights in succession, on each occasion the body to be thoroughly washed before the application of sulphur and lard. The immersion of the body-linen, bedclothes, or ordinary clothing in water, acidulated with sulphurous acid, is sufficient in all cases to destroy the larvæ and the parasite; so is a heat of 212° F., either in boiling or by hot irons. There need be no detention from business; the first application could be made on a Friday night, and the two succeeding ones on a Saturday or Sunday evening.

LOUSINESS.

The human body may be infected with three different kinds of lice: the head-house, body-louse, and crab-louse.

Uncleanliness, insanitary states, perverted nutrition of skin, bad food, filth, etc., give rise to a depraved condition of skin, which render it a chosen pasture-field, or seat, for the hatching and breeding of the larvæ of those parasites. The three species are oviparous, the eggs being known as *nits*; sexes distinct; young are hatched in five days, and in eighteen days are capable of reproduction. The numbers of eggs laid are immense. Each of the three has its favorite location or abode. On the head they are very easily got rid of by daily washing and using vaseline or ozone ointment as a hair dressing; on the body, it should be thoroughly bathed and lightly sponged with tincture of lobelia. The crab-louse, on pubes, axilla, eyebrows, may be got rid of at once, by washing thoroughly, drying off and damping the affected parts with a lotion of two grains of corrosive sublimate to an ounce of water. The stavesacre, or cocculus ointment, is excellent.

To destroy the larvæ on head, body, pubes, warm vinegar is very efficacious, applied morning and night. Bedclothing, and also body-linen, should be boiled and subjected to a strong heat with hot iron, and all due precautions taken for thorough destruction.

INFLAMMATION OF CELLULAR TISSUE.

The tissue between the skin and the muscles, called the cellular, or areolar tissue, is one of the best structures in the body for absorbing drugs, poisons, diseased germs.

It is into this tissue that all hypodermic injections are introduced; into this tissue that the bacteria and other diseased germs excite deep-seated inflammation; the germs of dead bodies, bites of venomous reptiles, insects, and other micro-organisms breed here with great activity.

Symptoms.—Besides erysipelatous inflammation of the skin, the same condition exists in the cellular tissue, which gives rise not only to a burning, tingling, but violent throbbing; the

swelling is stiff, brawny; the absorbents become quickly involved, the nearest lymphatics implicated with doughy swellings on the chest or abdomen; the inflammation of lymphatics proceeds rapidly to suppuration. There are violent rigors, a low type of typhoid fever, with abscesses in lungs, liver, and other parts. Perspiration very offensive; stools fetid; jaundice; stupor; delirium; difficulty of breathing; fatal exhaustion.

Treatment.—Active treatment of the wound by puncture, suction, cups; free bleeding by incisions; and bathing with hot water, followed by caustic and antiseptic poultices, and lotions of permanganate; open lymphatics the moment swelling is detected; control fever with aconite and serpentaria; and above all things push antiseptics, as carbolic acid and tincture of iodine, or brewers' yeast in sweet milk: and quinine, to protect the blood discs from the action of the germ. If there are nausea and vomiting, an emetic of lobelia, and often cleansing out the bowels has a salutary action. In all other respects treatment similar to *Typhoid Fever*, affording relief from pain.

Rheumatic inflammation of the cellular tissue is rare; still as it is of the class of tissues implicated, when the blood is charged with lactic acid it suffers, especially on the sheaths of the muscles that are imbedded in it. In some cases it is so severe that the nodules of lymph can be felt isolated or adherent; in other cases they are very numerous, imparting a thick, gritty feel to the skin.

In all cases the general treatment for *Rheumatism*, a perfect alleviation of pain, with iodide of potassa.

TUMORS.

A morbid growth is a certain aggregation of living tissue, growing independently, excessively, and abnormally. The word *tumor* is applied to it. They seem to originate in an excess of certain materials in the blood, and some local irritation causes those materials to be exuded or thrown out. What the constitutional defect is, is unknown. They constitute a local error of formation, and they are identical with certain constituents of the body, and not incompatible with a high standard of health when they are simple. They may grow, or remain stationary for an indefinite period, and latterly suffer degeneration, or excite inflammation, suppuration; or they may, by their bulk, cause obstruction, œdema, paralysis of parts. They are devoid of pain.

In another class of tumors we have the degraded bioplasm of our own bodies (a cancer germ) entering into them, and constituting a malignant tumor or growth, which grows by its own faculty of germ-elaboration, and forms fresh aggregations from the blood. They are called malignant because their tendency

is to destruction and death; and they are always painful. So we draw a line of demarcation between the two kinds of growths. Both are constitutional; that is, the elements are in the blood, arising from some defect. In the *simple* class, the matter in excess in the blood is some of the normal tissues of the body, as fat, fibrous tissue, etc.; whereas in the malignant class, the tumor is either partly or wholly made up of diseased germs, the degraded living matter of the human body; matter changed by adverse conditions, but living, and growing, and capable of independent existence for ages.

(1.) **Fatty Tumor.**—This is composed of genuine fat-tissue; that is, of oil-globules packed in the meshes of a natural areolar tissue, contained in a capsule, in which blood-vessels ramify and supply nutrition. They generally grow in the subcutaneous tissue, between the skin and the muscles. They are most frequently met with below the collar-bone, body, back, neck, inside of the thighs, and sometimes in or among the muscles.

In number there is generally one; it grows slow, may attain an immense bulk, seldom degenerates, is free from pain, and is easily recognized by its soft, lobulated, doughy feel, which never can be mistaken for anything else.

If the tumor is not large, in some cases (not always), the application of the ozonized clay has a most marvellous effect in causing its dissolution. It is worthy of a trial. It may be kept constantly applied, if it induces no redness of the skin; if it causes any redness, off and on at proper intervals.

(2.) **Fibroid Tumor.**—This tumor is composed of fibrous tissue, identical with that of the normal tendonous structures of the body, arranged in bands, loops, or crescentic layers. Some contain more blood-vessels than others, and are pinkish in color, but the majority of them are destitute of vessels. This class of tumors is found in the womb, breast, bone; when found in the breast they pass by the name of *neuroma*. They are firm to the feel, free from tenderness, smooth, oval, or lobulated; of slow growth, lasting an indefinite number of years. It often degenerates into a stony mass, or earthy salts.

When no larger than an orange, the application of the clay should be tried, keeping it steadily applied if no erythema is produced, and administering iodide of potass internally. That failing, extirpation is the only remedy.

Besides the above, there are often found, (1.) a subcutaneous tumor about the size of a pea, composed of fibrous tissue, which affects women, and gives rise to neuralgic pains; (2.) a fibro-cellular tumor, made up of bands of firm, white, fibrous tissue, infiltrated with serum; (3.) fibro-plastic tumor, made up of fibrous tissue and lymph; (4.) fibrous tumor, composed of filaments of fibrous tissue, with naked nuclei.

(3.) **Colloid, or Gelatinous.**—A substance resembling a jelly, of various degrees of firmness and transparency; is found in cysts of the thyroid gland, ovaries, and prostate. It is also found in stomach and bowels.

(4.) **Cartilaginous Tumors.**—Are made up of round masses of cartilage, embedded in fibrous membrane. It may consist of various degrees of firmness, from very soft to as hard as cartilage. They are found on the fingers, joints, testicle, mammary glands, parotid, lungs. Their growth is slow.

(5.) **Osseous Tumors.**—Are generally found in connection with bone, and very little difference can be detected between them and true bone.

(6.) **Glandular Tumors.**—Are formed by the development of a substance resembling that of secreting glands.

Sebaceous Tumors.—Wens, or encysted tumors, are most common on the head, face, and shoulders, and consist of obstructed sebaceous glands, or else of erratically formed cutaneous cysts. In examining them with a small glass, the orifice, or mouth of the gland, can be seen in the centre in the form of a black spot or crust. They are all lined internally with a serous membrane, which secretes water, epidermis, scales, hairs, nails, oil-globules, and crystals of cholesterine, which cause the contents of the sac to resemble gruel or suet. The cyst is liable to accidents, which give rise to distension, suppuration, ulceration.

Treatment.—The cause that engenders them is irritation; so they never should be irritated or tampered with, and, as a rule, not interfered with if patient is out of health. In all cases they should be removed by the knife only by making an incision through their centre, and carefully dissecting out their sac, for if the smallest portion be permitted to remain, it will give rise to a sinus and weeping. Such tumors are common in the breast, prostate, parotid, and thyroid glands. As a rule, they are painless, not tender, moderately soft, elastic, and lobulated. Extirpation is the only cure.

(7.) **Cystic Tumors** are tumors consisting of a sac containing solid or liquid substances. They may arise by the formation of definite cavities in the meshes of the areolar tissue; by the dilatation and growth of obstructed gland-duct or follicles; by the erratic development of nucleated cells, which become exaggerated into cysts. Some contain serum; others a jelly-looking substance, some blood, others solid matter.

(8.) **Melanotic Tumors.**—The term melanosis has been indiscriminately applied to all tumors or deposits containing black pigment matter. Pigment is of frequent occurrence in the human body, and consists in a deposit in the form of the minutest sepia-colored granules, of a dark-brown or black appearance.

These granules may be free, or collected into masses, with a cell membrane around them, or they may be added to any morbid growth whatever. The chemical composition is not accurately settled, but nearly all forms contain from eighty to ninety per cent. of pure carbon. The division into true and false is a good one—the true being an animal matter, the spurious, carbonaceous matter from without that has found its way into the body, or the action of chemicals on the blood, or the stagnation of blood.

(A.) *True melanosis*, is a diathesis or cachexia, in which large quantities of pigment may be deposited, or infiltrated through many organs in the same individual, either alone or in conjunction with other elements. The primary growth is likely to arise from some pigmentary tissue, as the choroid, or a cutaneous mole. The secondary deposits are mostly found disseminated in the connective and adipose tissue, in muscles, tendons, mucous membrane and bone. The bones of the cranium, ribs, and sternum, most frequently affected. The organs which it generally affects are the spleen, liver, lungs, pancreas, lymphatics, brain, eye, kidneys, testicles, uterus, ovaries, rectum, mammæ. It may be associated with cancer.

When melanotic tumors, or nodules, are on the surface their is no difficulty in their recognition. When deposited on or in internal organs, symptoms are obscure. In all cases there is great languor and sinking of vital power. The cachectic appearance is a dusky, or ash-colored countenance; emaciation, dropsy, night-sweats, exhaustion.

Treatment.—Same as for *Tuberculosis*.

(B.) *Spurious form*: inhalation of coal dust in miners, in bronchi and lungs. From the action of chemical agents on the blood, and also from the stagnation of that fluid.

INJURIES.

Injuries consist in the division of various tissues, without or with wound of the skin or other parts.

Contusion, or *bruise*, is an injury inflicted by some blunt body; a strain is simply an undue stretching of a part. A contusion, or bruise, without any perforation of the skin, is likely to be followed by ecchymosis, a laceration of the small vessels, or even a large one, if deep, or if severe, it may pulpify the parts.

When superficial, the ecchymosis of the skin appears speedily as a swelling of a reddish color, which speedily becomes black; on third day, violet, with diffused margin or edges; on fifth or sixth day, green; on seventh or eighth day, yellow; and then gradually disappears about tenth or twelfth day, sooner or later, according to the vital force of the patient, and intensity and depth of contusion. If the contusion is deeper-seated, it

may not appear for twenty-four hours, or several days. Ecchymosis may, besides being due to injuries, be a symptom of purpura, scurvy, fevers, or of gangrene in inflammation.

Treatment.—The object in treatment is to check extravasation of blood, prevent inflammation, and procure absorption of the effused blood. For this purpose the bruised part should be placed in a raised position, and if about the eye a few leeches might be applied, and then a poultice of Solomon seal. If it occurs on other parts of the body, tincture of arnica or marigold should be used. Arnica or marigold has the property of astringing and contracting the walls of the capillaries, and also promoting the absorption of the effused blood. The ordinary garden marigold is an unexcelled agent. This should be taken when in full-bloom flowers, leaves and stem, and put to steep in common whisky for a month, pressed well down with whisky enough to cover. It is much superior to arnica. Either of the two may be administered internally, but their effects are very doubtful in that way.

WOUNDS.

Wounds are defined to be the separation of parts by external violence that ought to be together or united.

Varieties.—The incised wounds are those made with clean-cutting, sharp instruments; the punctured, or those made by instruments whose length greatly exceeds their breadth, including stabs or pricks; the lacerated, in which parts are torn; and the contused, or those effected by bruising.

The incised are the least dangerous, as they are produced by little violence, and admit easily of repair. The punctured are dangerous, from their depth, and from the possibility that either deep vessels or viscera may be injured, or that deep-seated extravasation of blood or abscess may follow. The lacerated, or contused wounds, are produced with greater violence, less likely to heal, and more prone to slough or suppurate. They do not bleed so readily as incised wounds.

Treatment.—The treatment of all wounds comprise four indications: (1.) to check bleeding; (2.) to remove foreign bodies; (3.) to bring the divided parts into apposition and keep them in union, and (4.) to promote adhesion.

Bleeding should be arrested by a raised position; the application of a sponge and pressure, and if a vessel is torn it must be tied.

Foreign bodies should be removed by fingers, forceps, sponge, water. The edges are to be brought together by stitches, one in the centre and the requisite number on each side; and they are to be supported by adhesive strips and bandage; and to promote healing, antiseptic dressing should be applied, as

carbolic acid, borax, tincture of benzoin, balsam of fir; so as to destroy the micro-organism in the wound.

Wounds of the Ear, Nose.—Wash the parts well by dropping cold water on them from a squeezed sponge; then press sponge on the part; when thoroughly cleansed, introduce as many stitches as are necessary to keep the edges together. Even if parts are completely separated they should be cleansed and placed accurately in their place, and stitched there, as they often adhere. Over and above the stitches, dress with some antiseptic, as balsam of fir, or compound tincture of benzoin, or pulverized borax; or if parts have been completely severed, compound tincture of myrrh. Keep wet all the time. Over all some bandage.

Wounds of the Scalp.—Cleanse thoroughly; remove all foreign bodies, as dirt, sand; shave the parts all around the wound, for one or more inches back; then with lead-wire the edges may be stitched together. If there is no lead-wire handy use adhesive plaster; over it a compress, and then a bandage. Stitches in scalp-wounds should never be made with linen or silk thread. Whatever is resorted to should latterly be followed by some antiseptic dressing, as balsam of fir, pulverized borax, or compound tincture of benzoin.

Wounds of the Throat.—Seize and tie every bleeding vessel that can be secured. If the windpipe is only partially cut through, secure it with strips of adhesive plaster. If it is completely divided, bring its edges together by stitches through the skin and the covering of the wind-pipe on both sides, drawing them closely together. Don't put any stitches through the windpipe itself. Adhesive plaster to be applied, dressed with some antiseptic, and the head kept well bent forward, to aid in the approximation of the wound.

Wounds of the Back of Neck.—The skin and muscles of the back of the neck are often cut deep to the bone, by razors; head drops forwards. Stitches of strong saddler's silk to be inserted at close intervals; adhesive strips, antiseptics, and head kept well back to favor approximation and union.

Wounds of the Chest.—In simple, incised wounds of the chest their edges should be drawn together by adhesive plaster, and compresses of antiseptics applied, and kept wet, and the chest bandaged so as to confine the ribs; bowels opened, and treatment for pleurisy resorted to. If the wound has been occasioned by a bullet, remove it if possible, or any clothing that may have been carried into the wound. Dress with lotions of permanganate of potassa, and keep patient over on the wounded side, so as to drain it effectually. If a portion of lung protrudes, return it into its place gently. Bayonets, crowbars, etc., pene-

trating chest, to be removed, treated antiseptically, and on general principles.

Wounds of the Belly.—In wounds of the abdomen, use stitches through the skin only, about half an inch from the edge of the wound; put them close, every one-quarter or one-half inch; apply between strips of plaster, and over all compress, kept wet with compound tincture of benzoin, with bandages over entire abdomen, followed with grain doses of opium every two or three hours. Treat for peritonitis; anticipate it; don't wait till it comes.

Should any portion of the intestines protrude, wipe them clean and return, if they are uninjured; but if wounded, carefully remove all foreign bodies, clots of blood, and then stitch them up with an over and over stitch, and return, closing the wound in the walls as in the simple wound. Treat at once for peritonitis. Wounds of the liver, spleen, bladder, kidneys, are very serious, but not necessarily fatal.

Wounds of Joints.—In all wounds of joints, the opening must be at once closed by stitches in skin, adhesive plaster, paraffine splint applied to secure rest; opium and veratrum viride given freely. Begin passive motion as soon as inflammatory action ceases, say in two or three weeks.

HÆMORRHAGE.

Loss of blood, or the escape of blood from the blood-vessels in which it is naturally contained, constitutes a hæmorrhage.

It is classified in different ways; as, for example, it is called:

Traumatic, when due to a wound, or injury, or incision; usually escaping in jets, corresponding to the contractions of heart; *symptomatic* of disease, as the bleeding from the nose in typhoid, and from other parts in tubercle, cancer, etc. Sometimes the term *idiopathic* is applied to it; then it is said to be a diathesis. It may be *active* or *passive*. *Active* hæmorrhage is present in injuries, inflammations; *passive*, when it depends on poverty or depreciation of the blood. They may be periodical, as in cases of vicarious menstruation.

The seat of hæmorrhage will depend upon the location of partial death or weakness.

The general principles of treatment of all hæmorrhages are: the circulation kept below 70; recumbent posture; freedom from excitement; simple, nourishing, but unstimulating diet; elevated position; and the application of stimulants, as heat, etc. Our best styptics are digitalis; mineral acids, as cinchona and nitromuriatic acid; quinine and aromatic sulphuric acid; turpentine, sulphuric acid; gallic acid. As soon as it is arrested, a diet rich in fibrin, as broiled beef-steak, eggs, cream, etc., mineral acids, cinchona.

DISEASES OF THE MUSCLES, TENDONS, BONES, AND JOINTS.

DISEASES OF MUSCLES AND TENDONS.

The muscles of the body act like so many ropes or pulleys upon the bones, for the purpose of locomotion. They rarely suffer from disease, unless it be those peculiar to muscular structure, viz., atrophy and hypertrophy with fatty degeneration.

(1.) **Myositis.**—Inflammation of muscular structure is rare; indeed, the heart is about the only muscle in which we see at times inflammation thoroughly established. Circumscribed inflammation in other muscles may be the result of injury, strains, over-exertion, disease of bones or adjoining textures.

Symptoms.—Pain, greatly aggravated by any movement of affected muscle. It becomes localized; there is heat, swelling, the latter distinct, resembling a tumor; rigors and fever. It may terminate in effusion of lymph, thickening, induration, or in a breaking-down of lymph, suppuration.

Treatment.—Control fever with aconite and serpentaria; relieve pain with anodynes; apply hot alkaline poultices during the day, and linseed poultices, with tincture of opium, at night; nourishing food; establish convalescence upon tonics.

(2.) **Myalgia.**—Stiffness, soreness, cramp, or pain in the voluntary muscles of the body, may be due to various causes: for example, in young persons of rapid growth, persons in whom the bones grow faster than the muscles, the muscles and tendons become stretched, and the individual suffers from what is termed *growing pains*. These are often quite severe, and involve both the fleshy part of the muscles as well as its tendons, either the centre, or where it is inserted into the bone, or both. It is often due to a strain, lift, over-exertion, and involves the muscles of back, chest, abdomen, arms, or legs. It is also a symptom of a shock from cold, great nervous prostration, and is thus prominent in certain diseases, as fevers, inflammation, parturition, rheumatism, scurvy, tuberculosis, cancer, chlorosis, leucocythema, dysentery, diarrhœa, prolonged lactation, exhausting maladies generally, and spermatorrhœa.

Symptoms.—Pain is the chief symptom; and this in its

degree and intensity bears a direct ratio to the amount of debility that is present. Where it depends on too rapid growth of bone in young persons, they seldom complain of it in the morning after a good night's rest, but comes on after exertion, and gradually increases till night. In the case of the masturbator, or those suffering from seminal losses, pains in the morning, and rather wear off during the day; whereas in case of disease, mostly an aching all the time. The pain in all cases, however, is aggravated by movement. General health in all cases is poor; skin cool, pulse natural or depressed; appetite good, clean tongue. In bad cases there may be night-sweats, loss of appetite, impaired digestion, constipation, no vigor or energy, inability for work, severe mental depression.

Treatment.—The principles of treatment will be modified by the cause, but all cases require good nourishing diet, as animal food, boiled fish, oatmeal porridge, cream, raw eggs, fruit, vegetables in abundance; tonics, as cinchona and mineral acids; sulphate quinine and aromatic sulphuric acid; quinine, iron, hydrastin, nux pill. Rest for the affected muscles, by splints or otherwise. Massage to be performed twice daily; begin with half-an-hour treatment, and increase length to two hours, if patient has means to carry out treatment. In the massage treatment, bathe a limb with soap and water; dry; use dry hand until there is a glow of warmth; then shampoo, rub, knead, and otherwise manipulate with warm olive oil; then another limb in same manner until the entire body is massaged. Electricity can follow if case is bad, or in a hurry to get well.

(3.) **Muscular Atrophy.**—Muscles may waste, their fibres become pale, small, and inelastic. This may happen from want of use or exercise, or from injury to their nerves, as in fevers, injuries, disease, or from exposure to cold, damp, or from some affection of the nerve centres, the muscles of an arm or leg may be smaller, as it were, by a blight. The affected member may become chilly, skin numb; it becomes imperfectly nourished and decreases in bulk; or if the patient be young, it fails to grow in proportion to the rest of the body. Some cases of atrophy may be attended with pain, especially if its nerves are irritated by blood poisons.

If atrophy is not cured, it progresses on to fatty degeneration; that is, the muscle or muscular fibres become usurped by fat, an inelastic body, and their power for movement is irreparably lost. This can be ascertained by placing the positive pole of a battery near its origin, and the other near its insertion, permitting current to run pretty strong, and bring the poles within four inches of each other. If muscular fibre is still good, muscle in a few minutes will bulge up or contract at its centre between

the two poles of the battery; if muscular fibre has become usurped by fat, it will lay quiescent, and exhibit no signs of contractility.

Treatment.—If the muscle has undergone fatty degeneration, no known remedy will avail; but if there is still evidence of contraction between the poles of the battery, a cure can be effected if the cause can be removed; so that the treatment embraces a general tonic course, as cinchona and mineral acids; very nutritious food, stimulating frictions, shampooing, manipulation, passive exercise, electricity, baths, etc., so as to promote growth and keep the muscular fibrillæ exercised. It may take months, but by constant perseverance with the massage twice a day it is bound to come.

If there is pain, stiffness, with spasmodic action, muscle rigid as well as wasted, the cause should be removed, and the case managed on general principles.

(4.) **Hypertrophy of Muscles.**—Muscles may suffer enlargement by excessive use. The muscles on the arm of a blacksmith or prize-fighter are enormously developed. In the former it is quite common for the right side to measure four or five inches more than the left. This can only go on to a certain extent—to a degree of growth in which there is an adequate nerve-supply; when that limit is reached, and exercise still continued or persisted in, fatty tissue will begin to take the place of muscular fibre, and the muscle will lose its contractility and become useless, because it has undergone fatty degeneration.

The treatment is rest and alteratives.

(5.) **Rupture of Muscles and Tendons.**—If a muscle is weak, and be subjected to violent, sudden, severe exertion, it may rupture, or the tendons may give way in the same manner.

It is easily recognized by the sudden snap, and severe pain, and loss of the use of the ruptured muscle.

Treatment.—It will unite like bone, nerve, or other structures; and to obtain this, it must be kept in apposition, by keeping the limb in such a position as will thoroughly relax the muscle; enjoin rest. It unites by connective tissue.

(6.) **Strains.**—A strain is a violent stretching of tendinous or ligamentous parts, with or without rupture of their fibres. It gives rise to severe pain, attended with faintness, great tumefaction in the part, with ecchymosis, with subsequent weakness and stiffness. If the part is not kept at rest; if the diet is very stimulating; if the blood is charged with diseased germs; or if it is some large joint, like the knee, there may be inflammation, and even fever. The most essential element in a strain is rest; and then some remedy to penetrate down to the diseased part, such as we have in the aconite, belladonna, and chloroform

liniment, kept on sufficiently long not to vesicate the skin; internally, open bowels, alleviate pain, and administer alteratives.

(7.) **Acute Inflammation of Sheaths of Tendons.**—Usually caused by punctured wounds; gives rise to a severe pain, of a tense, throbbing character; often leads to suppuration. In the management of such cases, if, after fomentations and purgatives, the pain is not relieved, free incisions must be made into the part, same as in *Felon*.

(8.) **Tumors on Tendons and Ligaments.**—In patients of a gouty diathesis, fibrous tissue, but more frequently urate of soda, is effused on the tendons of the small joints. (See *Gout*.)

(9.) **Ganglion.**—This is an encysted tumor, formed by the sheath of a tendon, or by a new cyst developed in one of the fringes of the synovial sheaths, or by a bursa, whether original or created by friction. When recent, it is an indolent, fluctuating tumor, transparent enough to permit the light of a candle to be seen through it. It contains a clear synovia, thin, or viscid, or semi-fluid. The ordinary seat of ganglion is about the wrist and fingers, still they are met with at knee, elbow, and other joints. They create pain, uneasiness. They are generally caused by strains. If they do not yield to pressure, the best plan, if free of the joint, is to run a seton through them, as it is not well to tamper with them.

(10.) **Inflammation of Bursæ.**—Bursæ are soft cushions that nature has planted around the insertion of tendons in and about joints, to relieve the parts from pressure. They are very numerous about the knee-joint, and are often irritated by females kneeling on hard floors in scrubbing; then they become painful and enlarge.

They need rest, fomentations, an alleviation of pain; and if they do not disappear, a free incision can be made into them.

Loose cartilages are sometimes formed in the sheaths of tendons; they are to be removed.

CRAMP.

A spasmodic and involuntary contraction of one or more muscles, attended with rigidity and great pain; most common in the muscles of the lower extremities, as the large muscle of the calf of the leg; but it is very apt to affect the muscular fibres of internal organs, as the stomach, intestines, bladder, uterus, pharynx.

The true cause is a weakness in the nerves that supply special muscles, and those weakened nerves crying for pure or better blood; so that disease-germs in blood, poverty of blood, gout, rheumatism, metals in blood, the bacteria of dyspepsia, the cholera germ, etc., besides, pressure on nerves not infre-

quently causes it, as the head in labor, etc. Swimmers often attacked, and common cause of drowning.

Symptoms.—The nerves of a muscle, weakened, irritated, cause the contraction, which gathers the muscle into a knot, appreciable to the touch and often to vision, when external. Pain is not only severe, but agonizing. The cramp, or contraction, or spasm, may last a few seconds, minutes, hours, and leave the part tender and patient prostrated. The same nerves of a muscle may be affected over and over again, if its vital integrity is not restored; or if due to a poison, it may affect different muscles, as in cholera, where all the muscles of the body are in a cramp.

Treatment.—To relieve the cramp immediately, administer either chloroform or the anti-spasmodic tincture, in twenty or thirty-drop doses, in warm boneset tea, every few minutes till relieved. Then search for causes, as debility, anæmia, indigestion, constipation, lead, tin, zinc, gout, rheumatism, and other blood diseases, and remove them with alteratives and tonics. Best of food; pure air. To raise the tone of nerves, quinine, glycerite of kepheline, aconite, belladonna, friction, shampoo, massage, stimulating liniments, baths.

DISEASES OF THE BONES.

The bony frame-work of the body, upon which the muscles, arteries, veins, nerves, and skin, are attached, is a structure of very low organization. Nevertheless it is liable to be influenced by adverse conditions, its vital integrity impaired by morbid states of the blood, by mechanical injuries, by defects in nutrition.

Periostitis.—The coverings of bones are called the periosteum, and is a fine, white, fibrous tissue, which covers the bones like the bark of a tree, for if it is stripped off by accident and by matter burrowing under it, separating it from the bone, and thus depriving the latter of its nutrition, the bone dies. The periosteum of any bone in the body may suffer a partial death, but it is more liable to occur on the subcutaneous aspect of those bones that are thinly covered, as the fingers, tibia, ulna, clavicle, and cranium.

Causes.—The chief causes are the syphilitic taint, in which case the germs gives rise to round or oval swellings, called *nodes*; which is an infiltration of lymph and serum into the periosteum, or between it and the bone; tubercule, mercury, rheumatism, which cause an inflammation and swelling of the entire length and circumference of the periosteum. It may also be due to injuries, punctures.

Symptoms.—The pain in inflammation of the covering of the bone is sharp, lancinating, very intense; if of the syphilitic

type, the pain at night is unbearable; pain still more severe if the bone is involved; tenderness; there is always some constitutional disturbance, greater or less. Fever, restless nights, mental depression. Rigors and throbbing indicate the formation of pus.

Treatment.—If seen early, before the pain changes to a throbbing, a strenuous effort should be made to avert suppuration, for that event is equivalent to the death of the bone unless well managed. Fever must be controlled with aconite, and large doses of hyoseyams and opium, to relieve pain. Powerful local stimulants should be applied, such as immersion of the finger, or part, in water nearly at the boiling point; the application of hot alcohol, or a fly blister, or the oil of lobelia; or, try compression—apply a bandage from the tip of the finger, up, as tight as can be borne, so as to control the circulation of blood to the part. Keep it very tight, so as to be almost unbearable, and on all the time. When used, it must be before the throbbing has begun. Bowels and skin actively stimulated—the former with anti-bilious physic, the latter with Dover's powder. Internally, iodide of potassium, in the stillingia compound, or in alternation with white bryonia and cimicifuga. If rigors and throbbing have taken place, do not wait for the formation of an abscess, but open early, clean down to the bone, following with hot fomentation and poultices. An early opening, free and deep, is the only means of saving the bone from destruction. After matter has been evacuated, poultice, and then follow with black salve, ozone ointment, or vaseline, as a dressing; if it is syphilitic, mercurial, tubercular, rheumatic, follow in with the treatment necessary for each. *Nodes*, as a result of periostitis, never form, only in syphilitic poisoning. They may be absorbed with iodide of potass, when soft, but if hard, forming an ivory exostosis, they may have to be chiselled off. Whitlow, or felon, is simply periostitis of the periosteum of the fingers.

(2.) **Ostitis; or, Inflammation of Bone.**—Inflammation of bones may arise from injuries, syphilis, tuberculæ, mercury, phosphorus, rheumatism, and may be followed by effusion of lymph, breaking down of lymph, abscess, caries, or necrosis, or ulceration of bone.

Symptoms.—There is a deep-seated, severe, dull pain, with swelling of the soft parts, rigors, and a fever; if acute, the parts slowly enlarge, tenderness increases, with weight and pain. If it proceed to ulceration (caries or necrosis), there are rigors, and pain changes to a throbbing.

The treatment embraces rest, control fever, keep bowels open, and skin active; local stimulants in the form of hot packs during the day, and the chloroform liniment at night. As soon as fever is controlled, iodide of potass in compound syrup

stillingia; keep patient under it for some months. If rigors and a throbbing have taken place, poultice, and as soon as indications of pus formation are clear, free openings. If an opening, or several openings, have taken place, run them into one, so as to give nature as little work to do as possible. Abscess is rare, the condition being a breaking-down of lymph in the substances of the bone, giving us caries or necrosis. Either of these conditions can be easily detected, by a gritty or sandy feel of the pus. In all cases general alteratives and tonics; best of diet, with an excess of phosphates, as oatmeal porridge, cream, and boiled white-fish.

(3.) Caries and Necrosis.—Those two terms are used to signify ulceration or gangrene of bone—conditions that may follow inflammation, softening, molecular degeneration, and suppuration of surrounding soft parts. It is called *caries* when it takes place in the spongy bones, as the vertebræ, or the ends of the long bones; *necrosis*, when it occurs in the hard, cancellated structure, or when shaft is involved in the gangrene. There are various forms of the latter: if the shaft of a cylindrical bone dies, and is enclosed in a case of new bone, it is called osteo-gangrene; exfoliation is a term applied to necrosis, or modification of the superficial layer, which is not encased in any shell of new bone. Caries attacking bones of a spongy texture, as the vertebræ and articular ends of bones, involves a less hopeful condition of repair than necrosis; whereas the latter, being in the middle of the bone, leaves the two ends of the bone in good condition, so that repair will take place even under the most unfavorable circumstances, because it is from the two extremities that the long bones receive their principal nutrition.

Symptoms.—Inflammation of bone, with suppuration and formation of sinuses, through which matter flows in which gritty or sandy particles can be detected—bony granules. Introduce a probe through one of the openings; the bare, dead bone, or its exfoliated, or broke-down portions, can be detected. Discharge very fetid; disease very chronic, and usually great constitutional disturbance.

Treatment.—If the parts admit of it, run the sinuses into one opening clean down to the bone, and wash out the cavity with four ounces of tepid water, in which one drachm of caustic potassa has been dissolved. In caries there is nothing to hope for but a healing of the bone, with deformity; whereas in necrosis, everything is to be gained by a speedy removal of diseased bone; so the above injection should be used every day, if no irritation is produced, so as to soften down the diseased structure. Poultices of linseed; enjoin rest; push a general alterative and tonic course, and a most liberal diet. Any spe-

cial blood disease at the root of the difficulty should be looked after by proper treatment for such.

(4.) **Atrophy of Bone.**—Atrophy of bone is marked by a diminution of their weight, size, bulk; involve the whole bone, or a part of it—one side of the bones of the face, or entire side; bones may waste to a mere shell. Atrophy may be caused by want of nutrition, nerve-supply; by disease, want of exercise; by disease, either in the bone or adjacent parts, and morbid states of the blood.

The treatment consists in removal of cause; general alteratives and tonics, with local stimulation.

(5.) **Hypertrophy of Bone.**—It sometimes happens that one or more bones increase in length, breadth, and thickness. This may occur in any bone in the body. The deviation from ordinary nutrition, on which such enlargement depends, is rarely controlled by any drug.

(6.) **Exostosis.**—Is a tumor formed by the irregular hypertrophy of bone. Such tumors are hard, painless, and globular, and mostly situated on the long bones. Their structure is that of ordinary bone, but usually more dense and compact. In some cases they are porous, in others of an ivory consistence. They cause no pain unless they press on nerves. On the inside of the skull they press upon the brain, and give rise to epilepsy; in the orbit they cause the eye to protrude.

Their cause is irritation, and effusion of lymph, which becomes organized into bone.

Treatment.—If not too dense, they can often be got rid of by absorption, by alteratives, and by iodide of potassa, with the local application of the ozonized clay; when hard, of the consistence of ivory, they can be cut down upon and chiselled off.

(7.) **Mollities Ossium.**—Osteomalacia, or softening of the bones. A peculiar constitutional affection, in which all or a part of the bones of the body may be affected by softening, which gives rise to distressing and remarkable deformity. Women beyond the age of forty are most obnoxious to it. The pelvis is sometimes alone attacked in child-bearing women, and in some cases the limbs. The characteristic of the disease is the absence of the earthy phosphates in the bones, so that they are unusually flexible.

Associated with, or probably dependent on, this condition or the cause of it, is very remarkable nervous depression, the health hopelessly impaired, with gradual loss of flesh and strength. The urine is loaded with large quantities of phosphates; severe pain soon follows, and spontaneous fractures are liable to take place. No treatment of any utility.

In old age we meet with the opposite condition, where the bones have an excess of phosphates, owing to which fact they

become extremely brittle, and are liable to give, or even break, upon the least violence.

There are also other morbid states of bone, in which certain elements are wanting, owing to special germs being present in the blood, as in rickets, bow-legs, spinal curvature, etc.; states in which the bones are soft, flexible, easily bent; conditions due to the want of the phosphates.

RICKETS.

A peculiar disease of the bones, in which the osseous tissue looks natural, but is insufficiently impregnated with earthy salts; a common condition among tubercular children, because their tissues, as a class, are very feeble, and suffer most when there happens to be a deficiency of phosphates, either in their diet or mother's milk. The use of bakers' bread, in which some vile chemical compound is introduced to whiten inferior flour into white bread, by which the phosphates are destroyed, is no food for either mother or child, as it is deficient in bone elements. The practice of feeding children upon farinaceous food is very productive of rickets. The digestive juices of an infant's salivary glands are not mature enough to digest starch; besides, starch lacks the nutrient properties of brain and bone. An infant fed on starch alone would die of starvation. Milk is the child's natural food. By the term starch we mean farina, corn-starch, rice-flour, and other trash manufactured to create disease. This kind of food interferes with the assimilation of bony matter. The absence of starch in milk, which nourishes the infants of all mammalia, shows that it is not necessary. Starch-feeding is a common cause of rickets; and such a method of feeding is the greatest and most grievous error in the diet of infants. Deprive domestic animals of phosphate of lime, and they become rickety. Rickets are common enough in our country; but with the erroneous treatment of diseases of dentition and cholera infantum, our offspring are cut off before they make headway.

Other causes might be enumerated, as, drugging mothers, meagre, or improper food, etc.; and in the child, drug, insufficient food, absence of sunlight.

Symptoms.—All the leading traits of a tubercular diathesis, dry hair, thin skin, pallor; imperfect digestion; profuse perspiration during sleep, especially about head and face; ends of long bones enlarge; peculiar physiognomy; growth stunted; head usually large; forehead prominent; fontanelles close slowly; tonsils often enlarged; chest narrow, with a prominent sternum; pigeon-breasted; spinal curvature; pelvic deformity; curvature of limbs; bow legs.

Treatment.—Same as for *Tuberculæ*. Great attention to

general habits, diet, exercise, clothing. An abundance of good fresh milk, animal food, raw eggs, boiled fish, oatmeal, wheaten grits, and the salts of compound hypophosphites of lime, soda, iron in Valentine's extract of meat, bathing, sea-water, inunction of oil, friction, shampooing. Other remedies of value are the milk food, glycerite of ozone, ozone water, cinchona, and aromatic sulphuric acid.

Lumbar Psoas, and Iliac Abscess.—Collections of pus in these several cavities, or situations, are generally due to caries of the dorsal vertebræ in rickets. Psoas abscess invariably has this origin. The lumbar and iliac abscess might result from debility, and other causes, without spinal disease.

Symptoms.—All the characteristics of rickets, with diseased spine and hectic. The quantity of pus quite great. When it points in the loins, generally on one side, it is known as a lumbar abscess. When in the groin above Poupart's ligament, having travelled along the course of both *psoæ* muscles, it is called a *psoa* abscess. When seen above Poupart's ligament it is called an iliac abscess. In very rare, or isolated cases, has the abscess burst into the abdomen.

Treatment.—It is well to bear in mind that a permanent cure cannot be effected, only by ankylosis; so that the patient should be placed under the same treatment as for tubercule; alteratives and tonics, best of diet, inunction with oil, baths, fresh air, and keeping the patient in best position for ankylosis.

The abscess should be drained of its pus every few days by the aspirator, carefully sealing the opening, which is extremely small after pus has been evacuated. It might be proper to mention here that inexperienced persons have often mistaken this form of abscess for a hernia, when in the groin, from the fact that it dilates when the patient coughs, diminishes, or altogether disappears, when he lies down; but it must be borne in mind the disease of spine, the hectic, sweats, exhaustion, with a sense of fluctuation in the abscess, are not present in hernia. It is possible that both conditions might co-exist together, so it is well to be guarded.

SPINA BIFIDA.

Cleft spine: A congenital deficiency of the posterior laminæ and spinous process of one or more vertebræ, owing to which there is undue distension of the membranes of cord, with cerebro-spinal fluid. It may occur in any of the vertebræ, but most common in the lumbar.

The cause is rickets in the fœtus, intensified by incompatibility of temperament on the part of the parent, which is supposed to be the cause of most malformations.

Symptoms.—A tumor, varying in size from a walnut to a

child's head. There is fluctuation, swelling, most tense when the child is in erect posture. The tumor may be transparent, or the skin may be unaffected, or it may be congested, purple, or blue. If only one or more lumbar vertebræ are affected, spinal cord does not deviate from its course, and only the posterior spinal nerves have any connection with the sac. If the tumor occupy part of lumbar and part of sacral region, the cord itself and its nerves will almost always be found in close contact with the sac. Not necessarily fatal, but likely to be if there is hydrocephalus, or paralysis of the bladder or rectum and lower extremities, or if the tumor bursts.

Treatment.—General treatment for *Rickets*; avoid starch, and give phosphates, and improve the health in every possible manner. Prevent further protrusion by a compress of leather, gutta-percha, or painting it with collodion and tannic acid. Aspiration of the contents of the sac, and then compression, operates well. Injecting tincture of iodine, or applying a clamp till it sloughs off, bad, reprehensible treatment.

The collection of cerebro-spinal fluid is first due to the want of the normal support of the vertebræ; its increase due to the irritation and unravelling of the serous fibres, causing exudation. The collection is termed *hydrorachitis*.

SPINAL CURVATURE.

The causes of spinal curvature are an inherent delicacy or weakness of organization; then peculiar avocations, causing the muscles on one side to become unduly developed and powerful, such as the habitual use of the right arm in a dress-maker or blacksmith; constant assumption of an unnatural attitude, or in hitching one shoulder in wearing a low-necked dress; nurses or mothers carrying children always on one arm; repeated standing on right leg, left knee bent; a tubercular diathesis, in which the muscles are weak, relaxed, flabby, or where there is a predisposition to rickets, or a deficiency of earthy salts in the bones, so that there results a loss of equilibrium between the resistance of spinal column and weight of upper part of the body where the vertebræ are soft, spongy; rickety diathesis strong, even amounting to inflammation, ulceration, or caries of vertebræ or their inter-vertebral spaces.

There are three varieties:

Lateral curvature, the convexity being to one side, usually the right.

Posterior curvature, or excurvation.

Anterior curvature, or incurvation.

(1.) **Lateral Curvature.**—This is the most common form. Appears chiefly in young girls from four to eighteen years of age, of a weak, tubercular habit, whose bones and muscles are

deficient in vital elements; who have been nursed and pampered, not supplied with the proper kind of food, nor had abundance of sunlight, or a sufficient amount of exercise in open air; and where there has been an inattention to a natural position in standing or walking, or in wearing low-necked dresses, or high-heeled gaiters, corsets, and tight-lacing. Its recurrence is much favored by myopia, which is so prolific in our large school-houses from over-crowding, and forced strains of the eyes, which leads to a constrained position in writing, walking, or in ordinary duties.

Symptoms.—One shoulder is observed to be higher than the other, with a growing-out of the scapula. While one shoulder is high, the other is unduly depressed. So one hip projects, while the opposite curves inwards. On an examination, the vertebral column is found to be curved; in double lateral curvature it is twisted like the letter *S*. As the thoracic and abdominal cavities are more or less depressed, the movement of the lungs and heart are interfered with, and the play or peristaltic action of bowels, liver, uterus, are impeded. The general health suffers greatly; difficulty of breathing, dyspeptic, and other indications of derangement; pain in side from pressure exerted on the nerves. If it is dependent directly on a rickety diathesis, there are the usual cachexia and distortion of the limbs.

Treatment.—Removal of causes, as tight lacing, corsets, high-heeled shoes, low-necked dresses; abnormal posture in everything—in avocation, play, school; every means to obtain a high standard of health should be resorted to. For this purpose, sea or country air, abundance of sunlight; daily bathing; animal food, milk, raw eggs, boiled fish; oatmeal, corn-cake; very generous diet, to reach the highest standard of good health. When not exercising for benefit of health, rest in the recumbent posture in bed, with head low. Once, twice, or even thrice daily, strengthen the muscles and ligaments which act on vertebræ, by frictions with stimulating liniments in olive oil; palpation, or gentle kneading or shampooing, to be performed by a very vital attendant; carefully devised exercise. Clothes must be light and warm, so that there be little weight on vertebræ. Unless case is bad, it can be more successfully treated without than with apparatus.

A diet essentially of phosphates is the best medicine; still, pain must be relieved, bowels attended to, appetite stimulated, and a sleep of ten hours in the twenty-four induced. The compound hypophosphite of lime in beef extract is our best remedy.

(2.) **Posterior Curvature.**—Chiefly affects the cervical and dorsal regions. It is generally caused in infancy by the frequent practice or custom of mothers and nurses in raising the

child by placing the hands under the armpits, and so compressing the ribs, and forcing back the sternum and spine. Under this frequent custom, the muscles and ligaments which keep the column erect, become weakened and relaxed. In some cases it may depend upon rickets:

(3.) Anterior Curvature.—Almost invariably associated with or dependent upon a tubercular and rickety diathesis, producing tubercular inflammation, caries, with destructive ulceration of the bodies of the vertebrae, the intervertebral spaces; or interstitial softening and absorption of calcareous elements of bony tissue. As the bodies are destroyed or absorbed, the spines project backwards, forming an angle. As many as five or six of the vertebrae, with their intervertebral spaces, may be affected. It is more frequently met with at the middle of the dorsal region than elsewhere.

The Cause, of course, is tuberculæ, with rachitis; but often brought into activity by falls, blows, improper support to the back of children, rapid distension, throwing the head back in fits of passion in very young children.

Symptoms.—Intense tubercular diathesis; weakness; coldness; numbness of legs, with twitching and spasm. Subsequently, paraplegia, with paralysis of bladder and rectum; tenderness, or dull, aching pain in back; tightness of chest, with more or less difficulty of breathing; rigors; formation of abscess in back, the pus of which finds its way along the course of the psoas muscle in the groin; exhaustion, sweats, hectic. Under favorable treatment, the disease gets arrested; bones collapse; ankylosis occurs; patient recovering with incurable deformity. Sometimes sudden death, owing to diseased bodies of the vertebrae giving way and crushing the spinal cord, or from dislocation, with ulceration and destruction of its ligaments.

Treatment.—General treatment for *Tuberculæ* and *Rickets* as far as practical. Perfect rest in the horizontal position indispensably requisite; the use of a reclining couch, so shaped as to keep the trunk perfectly quiet; a stiff bandage of paraffine, extending from the occiput to hips, to insure rest; no attempt to be made to rectify the deformity; pain to be relieved; pus in parts, or abscesses, to be removed by aspiration.

For mechanical support, the best application in all cases is a paraffine jacket, made after the manner of the plaster of Paris bandage. To make this jacket, take a large sheet of cotton-wool, long enough to reach from the nape of neck to beyond the buttocks. The thickness of the sheet is sufficient, but if the physician desires to have it thicker, he can double it or use two. It is then to be submerged in the liquid paraffine for five minutes. Have the patient in a nude condition, in the precise position in which it is desired to be retained; then turn out

the cotton, saturated with the paraffine, on a piece of oil-cloth, or any smooth body, oiled to prevent it adhering; spread it out to its original size; and after it has cooled sufficient so that you can place the back of the hand on it without inconvenience, it is ready for applying to the back. This cooling process will occupy three or four minutes. The sheet of cotton, so saturated, is applied to the back, from neck to hips, and well round the body. Its adaptability is perfect, filling every curve or crease. Then apply a bandage over all, pressing the cotton firmly. This pressure causes a cohesion of the cotton and paraffine. Then have a piece of ice handy, which will cause the paraffine to become as hard as a block of marble. If it is desirable to prevent the hardening, refrain from applying the ice; the paraffine in that case will take at least twenty minutes to cool.

DISEASES OF THE ANTRUM.

The antrum is much more frequently affected by disease than is generally supposed.

(1.) **Abscess of the Antrum.**—Is very common, as the result of blows on the cheek, and from decayed stumps of teeth in the jaw. It has been caused in new-born infants from injuries during parturition. The symptoms are aching, uneasiness of the cheek, preceded by acute throbbing, pain, rigors, fever, followed by slow and progressive enlargement. If unrelieved, there will be bulging of the cheek, extrusion of the eye, obstruction of the lachrymal duct, depression of the hard palate, loosening and dropping out of the teeth, and closure of the nostril. In some cases it will burst into the nostril or mouth.

Treatment.—A free aperture should be made into the antrum by extracting either of the molar teeth, and a trocar pushed up through the empty socket into the antrum. If the teeth are all sound, then an opening should be made through the membrane of the mouth, above the alveoli of the molar teeth, and the bone be pierced by a strong trocar. After the pus has been evacuated, it should be syringed out with an antiseptic wash, as borax or carbolic acid.

(2.) **Dropsy of the Antrum.**—The antrum may become enormously distended with its own natural, clear, mucous secretion, if the aperture into the nostril be obliterated. An opening to relieve the difficulty is best made through the molar teeth. Its evacuation should be followed by a stimulating injection of carbolic acid and glycerine.

(3.) **Tumors of the Antrum.**—In addition to abscess and dropsy, the antrum is often filled up with bony matter, exostosis, and fibro-plastic tumors of the consistence and form of brain or liver; often the color of the latter, and difficult to recognize from cancer. Others have the color and consistence

of kidney. We meet with fibrous tumors, very dense and encysted tumors, and other deformities, that may be mistaken for enlarged antrum.

With all diseases of the teeth and nose the antrum has much to do. The incessant tinkering about old stumps; filling with amalgam loaded with mercury, sets up irritation and effusion. The ignorant extraction of teeth has also much to do with it. Catarrh, and its diseased germ, amœba, often block up the nasal opening. The trouble seems to be that when its lining membrane becomes irritated, that it will secrete an endless variety of substances, which, when liquid, semi-liquid and glandular, are easily got rid of by an opening, stirring up the contents, and washing out the antrum daily with a stimulating wash. The kidney or liver deposits are often mistaken for cancer by the great pain they occasion. In all cases, besides the removal of contents, an alterative and tonic course. From the number of ignorant men entering the dental profession, it is highly probable the diseases of the antrum will be much increased.

FRACTURE.

By the term fracture is meant a break of bone.

Causes.—There may be a predisposition in the bones to give way, owing to disease, as atrophy, softening, or excessive brittleness of bone, due to an abscess or excess of certain constituents. The exciting causes are either mechanical violence or muscular action. Mechanical violence may be direct or indirect; *direct* when the bone gives way at the point to which the violence has been applied; *indirect*, when the bone gives way between two opposing forces. Muscular action is rarely a cause, unless the bones are either weak or diseased.

Varieties.—Fractures are divided into simple and compound—*simple* when there is no laceration of the skin or soft parts; *compound* when the bone has protruded through the skin. Simple fractures are divided into classes as follows: *transverse*, when the bone is broke clean across; *oblique*, when broke in an oblique direction; *longitudinal* when slit up in its length; *comminuted*, when broke into small fragments. Compound fractures are more dangerous than the simple because the force or violence necessary to cause a bone to force its way through the skin gives rise to a greater shock; because there is more danger of a laceration of nerves and blood-vessels; and because, under the tedious process of healing of broken bone, with ulceration of soft parts, the patient's vital forces may give out.

Symptoms.—The symptoms of fracture are essentially three: *Deformity*, such as bending, shortening and twisting of the injured limb; *preternatural mobility*, one end moving independently of the other; *crepitus*, a grating noise, heard and felt when

the broken ends are rubbed against each other. In addition to those three essential symptoms, there may be pain, heat, redness, swelling, ecchymosis, helplessness, twitching, spasm of the muscles.

Treatment.—The treatment is very simple, and embraces four indications, which, if properly carried out, patient in good health, no blood taint, or disease, will insure a good union of broken bone.

Before attending to those four points, the patient must be carried to his home, or hospital, on a stretcher or ambulance, with both legs tied together at knee and ankle; or, if an arm, tied to the body, so that there be no chance of the broken bone being thrust through the skin. When home, the bed on which he is to rest should be made as level as possible; the patient laid upon it, undressed and examined, and well washed.

(1.) The limb must be placed in such a position as will relax the principal muscles that cause displacement.

(2.) The fracture must be set; that is, the broken parts must be adjusted in their natural position. For this purpose the upper end of the limb must be held firmly by an assistant; the lower is extended, or firmly but gradually and gently drawn in such a direction as to restore the limb to its proper length and shape, carefully manipulating any fragments with the fingers into their proper position. If necessary to overcome pain or spasm, chloroform should be administered.

(3.) If it does not interfere with the dressing, the limb should be bandaged from extremity up, so as to confine muscles and prevent them from disturbing the fracture.

(4.) It is always necessary to use some mechanical contrivance to keep the limb its proper length and shape, to keep the two broken ends in perfect apposition, and prevent all motion or movement.

There are various contrivances and appliances, embracing splints, pads, sand-bags, starch and plaster of Paris rollers, paraffine moulds, adhesive strips, for each respective fracture.

If vitality is good, no syphilis, nor mercury, nor tubercle, nor cancer-germ in blood; if the bones are in perfect apposition, no pain, and a very high standard of health maintained, the broken bones might become cemented together without any swelling, or lymph-callus being present—a perfect union by first intention; but more frequently they unite in the following manner:

Repair of Bone.—When the vital forces of the patient rallies from the shock of the accident, nature begins to throw out lymph from the broken ends of the bone, the periosteum, and surrounding textures. She continues this process for a week or ten days. This lymph embraces the two ends of the bone and

adjacent parts. When nature has completed the effusion, she begins next a process of absorption and consolidation of this lymph, which gradually grows less and less, firmer, and more substantial, so that in ordinary cases, at the end of six weeks, the patient may get about, with care; and at the end of four and a half months more, this lymph is all absorbed, the two ends of the bone perfectly united, even as strong as the original bone. The technical term for that lymph, from its first effusion to its ultimate absorption, is a *provisional callus*. It is supposed that that lymph is first converted into fibrous tissue, and gradually into bone. The time of absorption and consolidation varies with the age, vitality, and fitness of dressing, apposition, rest, good nourishment, freedom from worry, etc. There are some bones when broken that do not unite by bone except in rare cases, such as all flat bones, like the skull, the neck of the thigh-bone, the heads of bones in joints, or bones covered by the synovial membrane, or lining of joints. There are numerous reasons for these not uniting, as they cannot be kept in apposition, or contact, or at rest; there is no structure present to form a provisional callus. This is a wise provision of nature, for if bony matter was thrown out in joints, their mobility would be entirely destroyed. The shafts of the long bones are where perfect union can be best obtained and with exactness.

NON-UNION AND FALSE JOINT.

A perfect union of the broken ends of two bones may not take place by bone, but by ligament, or not at all; the ends of the bones become smoothed off, and false joint forms.

This is liable to occur from a defect in the dressing; from irritability and restlessness of the patient; from age; debility; albuminuria; or from the presence of diseased germs in the blood, as tuberculæ, syphilis, cancer; or to the poison of mercury; or if the patient is pregnant, or a fever comes on; or if there is disease in other parts; or if there is an inadequate nerve-supply, meagre diet, insanitary surroundings, stimulants that deprave the blood; from pain in the fracture. No fracture can unite by bone if pain is present. Drugs are very liable to cause it, especially iodide of potass.

Treatment.—Should union not occur in the regular period, the best plan is to apply the paraffine dressing, which is soft, firm, and will keep the parts at perfect rest and perfect apposition, and in no way impede the circulation, like plaster of Paris or the starch roller. Should this not succeed, after six or eight weeks' trial, make an effort to remove the cause, if possible, and get the health restored. Then there are various methods of procedure, which have the same object in view, namely: causing a determination of blood to the part, a molecu-

lar excitement, a true hyperæmia. This may be done by the two poles of a battery, applied daily; by the irritating plaster over the part; by rubbing the ends of the bones against each other; or the fractured ends could be cut down upon, their ends sawed off, and treated as a compound fracture. In other cases holes are drilled in the bone; ivory pegs, setons, etc., everything calculated to cause a determination of blood to the part.

The constitutional treatment is of the greatest importance. Debility must be overcome, with good food, tonics; and it is well to see to food that contains bone, as oatmeal porridge and cream, boiled fish, and even administer lime-water in milk.

COMPOUND FRACTURE.

A fracture with a wound, or laceration, through which the bone has penetrated. The greater violence necessary to cause this form of fracture gives rise to more danger from the shock, from the danger of tearing nerves and blood-vessels, fever, tetanus, and the long process of suppuration incidental to such injuries. If principal nerves or arteries are torn or bruised, or other grave injuries present that would render repair impossible, amputation may be required; and divers other conditions present that render this class of injuries at all times serious.

Treatment.—If it is decided to save the limb, then the rough or splintered broken ends must be sawn off, and the fracture set like a simple one, and an effort made by plugging the wound with a piece of sponge saturated with carbolic acid and olive oil, to hermetically seal the wound up, and make it a simple one. The object in view is to destroy all micro-organism; coagulate the tissues. In eighty per cent. of all cases this will be successful if wound is thoroughly cleansed of clots, dirt, by washing it out with an antiseptic wash.

PARTICULAR FRACTURES.

As this manual does not contemplate the people at large setting fractures, we shall briefly enumerate the principal special fractures, and simply hint at their best mode of treatment, so as to enable the members of the family to judge of the intelligence, ability, and ingenuity of the physician who has the case in charge.

Fractures of the Skull.—Must all undergo trepanning, so as to enable the surgeon to raise and place in position the broken fragments. In children under fifteen, the cranial bones embrace but one plate; the same condition exists in old age. Fractures among that class are apt to be serious, as the broken bones are pressed in upon the brain or its membranes; whereas, in fractures occurring between fifteen and fifty-five, there is developed

a diploetic structure, which is spongy, intended to receive shocks, jars, and prevent them affecting the inner table. This diploetic structure gives us an outer and inner skull-bone, or table, and is beautifully arranged for the purpose. In fractures occurring in adult life, there is great probability of them only involving the outer table, which renders them much less dangerous. Trepanning is necessary to raise the bones.

Fracture of Base of the Skull.—Is caused by falling from a height upon the feet. The vertebrae are incapable of warding off the impetus of the shock, and its entire force is spent upon the base of the skull, which fractures, and is only known by the nature of the accident, and hæmorrhage from the ear; no symptoms of fracture present. Inflammation of brain is likely to follow, which should be anticipated by proper treatment.

Fracture of the Bones of Nose and Upper Jaw.—Generally produced by blows, or falls on face, or gunshot wounds. Any displacement should be rectified, any depressed fragments raised, loose splinters or projecting parts removed. The swelling, ecchymosis, bleeding from nose, congestion of head, to be attended to by keeping bowels open; aconite.

Fracture of the Lower Jaw.—Is usually caused by violent blows. Its common situation in adults is close to the eye-teeth; in children, at symphysis, or at the angle of ascending ramus. The inability to move the jaw, the irregularity of the teeth, gums lacerated and bleeding, and crepitus can easily be detected.

The paraffine dressing can be made to fit like a shield; keep the bones in perfect apposition. If teeth on either side are loose, remove them; liquid nourishment by a tube. The paraffine cap or mould to be held in position by a figure 8 roller round head. Union is very rapid; two to three weeks.

Fracture of Clavicle.—The collar-bone is often broken by falls upon the shoulder, and is easily recognized by the inability to raise the affected arm and support it at the elbow; the shoulder sinks downwards, forwards, and inwards.

The treatment is simple; raise the shoulder, and support in a direction backwards and outwards. This is best effected with what is called Fox's apparatus, which consists of a wedge-shaped pad for the affected side, a collar for the opposite shoulder, and a sling for the elbow of the affected arm.

It can be dressed in several other ways, but none so certain as with Fox's apparatus.

Fracture of the Scapula.—Easily recognized; best treated with a shield or cap made of paraffine, with arm in a sling.

Fracture of the Humerus.—When it occurs inside of the joint, non-union or stiffness is likely to follow in spite of the best care. In some cases it is very difficult to make out, as there is often at first no symptoms present but pain; and when

later the broken fragments are coated over with lymph, no crepitus is heard. When it occurs outside of the joint, all the symptoms are present. All cases of fracture of or in the joint, and two-thirds of the length of the arm, should be treated by setting the fracture; then bandaging from the wrist up to the shoulder; and by four splints, one in front, one back, and one on each side. Over all a bandage; arm in sling.

Fractures occurring in the lower third of the arm, should be treated in all cases by an L splint behind, and one in front. to raise the broken part; bandage before it is applied, and after.

Fracture at Elbow-Joint.—The most common is the point of the elbow, or olecranon. It is often broken in children. It can readily be detected by the broken piece being drawn upwards from three-quarters of an inch or more.

This is best treated by running a strip of adhesive plaster half-way down the forearm to the broken piece, then leaving a loop, and running it half-way down the arm; it can be more firmly secured by strips of plaster across. Then take the loop, and twist it until the bone is brought down to its place; then bandage from wrist to shoulder; then put on a straight splint on the front of the arm; over all another bandage. In two weeks the bandages and splint are to be taken off, loop slackened, bone held in place by the thumb of surgeon, and the joint moved half a dozen times; then the loop again twisted up; dressing again applied in same manner. Passive motion every two or three days, so as to maintain the integrity of joint. Better to keep dressing on for ten or twelve weeks.

Fracture of Fore-arm.—When occurring in the upper two-thirds of the arm, are best treated by two splints—one in front, other behind, a little wider than the arm; over these two splints a bandage, arm in sling. All fractures in the lower third should be treated by Bond's splint. Hand or fingers, when fractured, should be dressed on a ball of oakum, so as to maintain the convexity of the hand and fingers.

Fracture of the Ribs.—When the ribs are broken, they are either complete or incomplete. There is little difficulty in recognizing it when complete, by the grating sound on moving the rib; when incomplete, there may be detected the depression, and the pleuritic catch or pain.

In all cases let the patient lie down on his or her back in the easiest posture possible; then, over the seat of fracture put on a large strengthening plaster; over this run long two and a half inch strips of adhesive plaster in every direction, so as to confine the ribs; then over all a fine flannel roller, reaching from the armpits to near the navel; put pins in every three-fourths of an inch, beginning at the neck, and proceed downwards; the object being to confine the ribs and breath by the dia-

phragm; patient to lay quietly on back for ten days, bowels moved, and treatment for pleurisy at once begun.

Fracture of Pelvis—Is generally caused by tremendous violence, as getting crushed between car-bumpers; viscera very liable to be injured, which causes such fracture to be very fatal.

Encase the pelvis in a roller; attending to bladder and bowels; and anticipate peritonitis by administering opium and gelseminum.

Fractures of Coccyx—Are usually caused by women over thirty-five having children for the first time. About that period of life ossification takes place, which breaks by the pressure of the head of the child. It may be caused by falls, kicks, etc. Cleanse out bowels with oil; replace the broken parts; apply compress and a T bandage, and lock up bowels with opium for ten days. If there is much coccydynia, belladonna suppositories.

Fractures of the Femur.—Fractures of the head of the thigh-bone inside of the capsular ligament of the joint occur most frequently in women over forty-five years of age, or in men a little older; commonly the result of falls—treading on some fruit-skin. It often takes place without causing any other symptoms but pain and lameness of gait. In other cases symptoms are well marked.

When it occurs at the neck of the head of the bone, outside of the joint, there is no difficulty in recognizing it. All fractures of the thigh, except in the lower third of the bone, should be treated by keeping patient on back, on a hair or straw mattress; then extension should be effected by placing adhesive strips on the limb up to the seat of fracture, binding them to the thigh, leaving no attachment on leg, carrying them beyond the sole of the feet, to which a weight of about fifteen pounds is attached, and the foot of the bed elevated one inch for every two pounds, so as to give the necessary counter-extension; in other words the soles of both feet should be even. Lateral or side support, or pressure, should be effected by two long sandbags the diameter of the patient's legs, one running from the armpits to four or five inches beyond the ankle; the other on the inside of the thigh, reaching from the groin to four or five inches beyond the inner ankle. With a proper adjustment of this method all fractures of the thigh bone except the lower third can be successfully treated without any shortening. In the lower third the limb must be placed in a bent position as in fracture of the upper portion of the leg.

Fracture of the Patella, or Knee Cap, is generally transverse. The upper fragment is drawn upwards by the rectus muscle, leaving a space between the broken bones. Place patient on back; run a strip of inch-wide adhesive plaster ten

inches down the rectus to the cap, then leave a loop and run the same length down the leg; twist the loop till the two broken pieces approximate perfectly; then bandage limb from toe to groin; put on a straight splint behind and bandage that to the limb. In two weeks dressing must be undone; the broken bones held together by an assistant; the joint moved so as to keep up a secretion of synovia. Dress as before. Use this form of passive motion every few days, so as to prevent a stiff joint.

Fracture of the Leg.—The upper portion of the leg, when broken, must be kept in a bent position, at an angle of 45° , so as to relax the large muscle of the calf. The best dressing is a wire cage made to encase the front part of the thigh, leg, and foot. This can readily be made by a wire-worker. Bandage limb first after fracture is set, then apply this case, well padded, and over all a roller and suspend the limb from the ceiling.

Fractures of the Leg and Foot.—Are all best treated by the fracture-box, with extension and counter-extension necessary to maintain perfect apposition.

DISEASES OF JOINTS.

The joints of the human body are simply so many hinges upon which the bones move, all finely lined with a soft, velvety membrane, which, during sleep, secretes a bland fluid for lubrication. This lining tissue is called a synovial membrane, and the amount of synovia secreted during repose depends greatly on the health of the individual; if of good vital stamina, it is so great as to increase the stature by nearly an inch in the mornings. In cases where the nervo-vital fluid is deficient, as in masturbators,—the secretion is so deficient as to cause the joints to crack. If a joint is tied up, immovable for some time, and no demand made for this lubricating fluid, there is none secreted. In all cases it is expended by healthy exercise during waking hours.

(1.) **Acute Inflammation of the Synovial Membrane, or Acute Synovitis**, is produced by both local and constitutional causes; the former are blows, strains, mechanical injuries, and especially penetrating wounds; the latter are exposure to cold, rheumatic, gout, syphilitic, and mercurial poisons.

Symptoms.—In the most acute form the symptoms are very severe, namely, high fever, delirium, violent aching pain in the joint, aggravated by the slightest motion; great swelling, occurring soon after the pain; redness and tenderness of skin.

The swelling is peculiar, and distinctive of the disease. It is occasioned by the rapid effusion of fluid into the synovial cavity, and consequently if the joint is superficial, it fluctuates freely. It is always most prominent at the point where the

joint is least covered by ligament, and consequently it alters the shape of the joint. When the knee is affected, it pushes the patella forward, and there is great swelling on each side of it, with general fullness of the surrounding parts. The limb cannot be moved without giving rise to the most excruciating pain.

The synovial membrane when suffering inflammation becomes extremely vascular, red, rough, tender; granulations are very liable to form.

Treatment.—Rest to the irritated, weakened joint; it should be kept perfectly motionless; this is indispensable to success. Keep it in a paraffine splint; dry heat, with hop, bran, chamomile flowers, or other light bodies during the day, and some stimulating ointment during the night. Bowels opened with salines; aconite, veratrum, etc, for fever; if due to mercury, iodide of potass; if gout, phosphate of quinine; if rheumatism, alkalies and colchicum. Pain in all cases to be relieved; general alteratives and tonics.

(2.) **Chronic Inflammation of the Synovial Membrane of a Joint** has the same causes and presents the same general features as the acute. There is no fever, but the pain is often severe, grinding, excruciating, with a sense of weakness and relaxation. The swelling is great, indolent, and the tissues around the joint are thickened, gristly, and the swelling loses its softness and fluctuation. It is very apt to give rise to pulpy degeneration of the membrane, with ulceration of the cartilage and destruction of joint.

Treatment.—The points here are to reduce the inflammation, correct the morbid state of the blood that gave rise to it, and get rid of the effusion and thickening and restore the parts to their proper use. The skin, kidneys, bowels, and appetite to be attended to; a general alterative and tonic course prescribed; all pain removed from joint by stimulants. If swelling is great, it is a good plan—saves nature an immense amount of labor—to remove fluid from the joint by aspiration. There is no possible danger in perforating the joint with a small trocar and draining all off, because a round orifice at once contracts. It should be closed with compressed sponge, and if there is thickening, apply the ozonized clay, at the same time pushing the alteratives. All sorts of blisters, irritating plasters, or irritants, should be avoided around joints. If there is pain, rest and hyoscyamus.

(3.) **Abscess in Joints.**—The effused lymph in chronic inflammation, besides its tendency to soften and ulcerate the structures of a joint, has also a tendency itself to break down and give rise to abscess. The pus should be evacuated by aspiration; alteratives, and tonics; and stiffness or ankylosis guarded against.

(4.) **Chronic Gout and Rheumatism Affecting Joints,** is

very apt to give rise to peculiar alterations of all the tissues of a joint. In some cases they become irregular, enlarged, flattened, or covered over with excrescences, projections. In other cases the cartilage is worn away, leaving the bone bare, or in grooves, or covered over with projections.

In this form of irritation there is usually racking pain in the affected joint, of a rheumatic, gnawing, wearing character, always worse at the change of the weather, or the heat of the bed at night. It may not be aggravated by pressure. The joint becomes stiff, its movements limited, and accompanied by a grating sound; muscles prone to waste, and limb becomes shorter. The general alterative and tonic course, as laid down under *Gout* and *Rheumatism*, with the local application of the ozonized clay, is usually efficacious in effecting a cure.

(5.) **Tubercular Disease in Joints.**—Irritation of joints; the pain being of such an incessant, racking character, soon depreciates the reflex nerve centres, and causes that peculiar degradation of bioplasm, tubercle; or the patient may have been tubercular before the irritation, in which case, in the weakened synovial membrane, cartilage, and ends of bone, tubercle is freely effused, which grows, and undergoes various processes of life, dies, and takes on its peculiar changes of degeneration. The wrist, hip, and knee-joints are the most obnoxious to tubercular deposits. It is not common over thirty years of age. The tubercular diathesis is always well marked. The greater prevalency of disease of the wrist, hip, and knee-joints is to be accounted for by the presence of pink marrow in the cancellous structure, which discharges the function of ordinary lymphatic glands. Above all other structures, the lymphatics are liable to tubercular deposit, when irritated and weakened. The pink marrow in the bones of the hand, the hip, and knee-joint, when weakened, becomes invaded with tubercle, in the same manner as the lymphatics of the connective tissue, but being in a solid, bony case, it has not much room for growth, which gives rise to much trouble.

In the *wrist*, if suppuration has not taken place, the clay is the best local application; if suppuration has occurred, matter to be removed by aspiration, and indurations softened by clay.

In the *knee*, or *white swelling*, if the tubercle is in a fluid state, aspiration; if induration, the clay all the time, if no irritation is produced; if suppuration has taken place, repeated aspirations, to remove pus.

In the *hip*, or *coxalgia*, if seen early, counter-extension on the thigh, to keep the head of the bone from pressing on its cavity; rest, when not out in open air for benefit of health; application of ozonized clay; if suppuration has occurred, openings, poultices and clay, alternately. The use of the ozonized clay in the

destruction of the tubercular germ in joints, has produced a remarkable revolution in treatment of this hitherto stubborn and intractable disease. Its success is immense. In all cases, there is to be inculcated an active tonic and alterative course, as laid down under the head *Tuberculosis*; a very nutritious diet; attention to bathing, and all means conducive to improving the general health.

(6.) **Anchylosis.**—This term signifies a fusion or union of the ends of bones, and may take place, in a greater or less degree, in any joint that suffers from inflammation, it being due to effusion of lymph, the result of that process; so that it behooves us, in the treatment of all joint affections, to keep the limbs in as favorable a condition as possible, in case this difficulty should arise. It is met with in two forms, false or spurious, and true or bony. The false is due to effused lymph, which has become partly consolidated, thickened, organized into bands, adhesions, and become fibrous tissue, but still capable of being bent. The true, or bony, is when that same effusion becomes organized into bone, and is perfectly immovable.

Treatment.—Before any attempt at cure, in either the false or true forms, be made, the patient should be examined as to whether he possesses any rheumatic taint; if so, this should be corrected before treatment is commenced.

For the *false*, gentle movements of the joints should be made once or twice daily, varying from a few minutes to half or even an hour; if muscles are wasted, massage. At all other times the joint should be kept encased in ozonized clay, provided no redness takes place; if that should take place, do not change clay often, simply moisten with hot water.

In the *true, or bony*, the same precautions, as to *Rheumatism*; then place patient under alcohol, chloroform, ether, and break the joint by forced rupture. Then let it rest a few days, and begin passive motion, as in the former—a little and a little, so as to produce no irritation. The ozonized clay to be kept constantly applied, which acts as a solvent to the effused lymph and bony deposits, and promotes their absorption.

Internally, the best of diet; alteratives, as glycerite of ozone, ozonized phytolacca, iodide of potass; and tonics. The clay treatment entirely obviates the necessity of resorting to excision of the joint, as is generally resorted to. It takes very little longer; makes a better cure; and is devoid of all risks, and should be applied. When faithfully used, it operates like a charm.

There exists an aversion among a very large number of physicians against interfering with stiff or ankylosed joints. This is now radically overcome, by the innocuous character and great efficacy of the clay treatment.

DISLOCATIONS.

Joints are all encased in a strong capsular covering, or ligament, which retains or holds them in position, and forms a cap, cup, or reservoir to hold its synovia. This capsular covering, or ligament, is often weak, relaxed, and in some cases it is torn or lacerated, so that the head of the bone escapes from its cavity into the surrounding parts. If the covering of the joint is merely relaxed, the head of the bone may come out of its socket, but is easily thrown into its place by the individual himself; but when it escapes through a tear, it requires relaxation of muscles, and manipulation to get it to recede back through the same opening by which it escaped.

A dislocation, therefore, is the escape of the head of a bone from its natural cavity.

Causes.—It may be caused by external violence, or muscular action, and in some cases of diseased joints, by ulceration of the ligament.

Symptoms.—The symptoms are two: *deformity* being the alteration in the form of the joint, in unnatural prominence at one part, a depression at another, with lengthening or shortening of the limb. Loss of the proper motion of the joint. There may be numbness, pain, ecchymosis, swelling, etc., but no crepitus.

Treatment.—If possible reduce the dislocation before the patient recovers from the shock, while relaxed; if not, administer lobelia, to nauseate him and relax, or else chloroform and ether. Better, as a rule, to relax the muscular system in all cases, either completely or partially. Then the head of the bone should be manipulated or manœuvred back into the socket through the same opening through which it made its escape. The shoulder and hip joint are the only two that require nice manipulation or rotation; all others are brought into their place by simple extension, an assistant holding one part, and the other drawn gently into its place by the operator. After a dislocation has been reduced, the limbs should be bandaged up for ten or fifteen days, giving the tear in the capsular time to heal up. If it is complicated with fracture it is likely to give rise to a stiff joint, or ankylosis, under the best of care.

Dislocation of the Lower Jaw.—May be caused by a blow on chin, or gaping wide. It is very easily recognized by the inability of the patient to close the mouth; speech and deglutition almost impossible. Sit patient down on low chair; place thumbs of both hands behind the molar teeth of lower jaw, and press downwards; at the same time elevate the chin, the head of bones will go into sockets, with a snap. Bandage jaw and head for a week.

Dislocation of the Clavicle.—The end of the collar-bone next to the breast-bone is often dislocated forwards by blows on the shoulder. The bone on lying down returns to its place; a firm compress over the part, and rest for a week.

Dislocation of the Shoulder-Joint.—May occur in three principal directions: downwards, in the armpits; upwards, on the collar-bone; backwards, on the scapula. The first is easily known by a hollow where the head of bone should be, by numbness and lengthening of the arm; in the two latter the arm is shortened, the head of the bone can be felt in its new position, on front or back. In the first form downwards in axilla, patient laid on floor, relaxed, put sole of foot in armpit, and pull the arm, the head of the bone will return with a snap. In the other two, upwards and backwards; the patient may sit on a stool, an assistant press the head of the bone back, while the operator rotates or manœuvres the head back to its sock. Put arm in a sling for a week.

Dislocation at Elbow.—May take place in six different forms, all easily known, and reduced by simple extension.

Dislocation of Wrist and Fingers.—Treatment, simple extension.

Dislocation of Hip-Joint.—May occur in four different directions: (1.) upwards, on the ilium; (2.) backwards, in the sciatic notch; (3.) downwards, into the thyroid foramen; (4.) upwards, and forwards, on the pubes. They are each easily recognized by the lengthening or shortening of the limb; by the inversion or eversion of the toes; position of the foot and head of the bone.

All reduced under relaxing anæsthetics by rotation, or by raising the head of the bone, producing extension, and otherwise.

Dislocation of the Knee and Foot.—All by simple extension.

All bones should be replaced as soon as possible, as there is a tendency on the part of nature to fill up joints or cavities with lymph when not used, and to form a new socket for head of bone in new position. It is impossible to say how long nature takes in case of hip-joint. I have effected reduction when out eighteen months; other joints often blocked up in a few weeks.

In the treatment of all dislocations we would imperitively insist upon *rest* to the lacerated synovial membrane after reduction of the luxation, for a period of two weeks; the object in view being, to aid nature in healing or closing the aperture through which the bone had escaped. If vital force is normal this is effected in one week, but longer time is required if there is the slightest deviation from health. Hence the precaution of a longer period of rest.

CHILD BIRTH.

PREGNANCY.

Conception consists in the fertilization of the ovum or egg of the female, by the spermatozoa of the male in the ovaria; then fecundation takes place. There must be a union of the two materials furnished by both sexes; that is, the spermatozoa must unite with the egg in the ovary and fertilize it; and the embryo results from this union. The spermatozoa is ejaculated into the vagina; the uterus, by inhibitory action and vermicular movements, takes it into its cavity, and passes it along the fallopian tubes to the ovaries. It may occur without the patient being conscious of its occurrence, or against her will. The most favorable period for conception to take place is either before or after a menstruation. After the ovum is impregnated, it increases in size and becomes prominent on the ovarium; then absorption of its peritoneal coat takes place; and when free, is seized by the fimbriated extremities of the fallopian tube, and carried into the cavity of the uterus.

The ovum, as a general rule, is found in the uterus twenty days after impregnation, sooner or later.

After the exfoliation of the ovum from the ovary, an effusion of blood takes place into the cavity in which the egg was embedded, and this is followed by a corpus luteum.

The human impregnated egg is very small, about the size of a dwarf pea. When impregnation takes place, the internal os uteri becomes closed by a soft, gelatinous substance, and the internal lining membrane of the uterus throws out a flocculent or downy substance, which fills its cavity entirely. This is called the *membrana decidua*, and into this downy bed the ovum drops when it makes its exit from the fallopian tube, and, if not disturbed, will form its attachment near the point of ingress, and cause a growth of that part with which it comes in contact, and is called the *decidua reflexa*. So that the decidua is now divided into that portion lining and in contact with the uterus, called the *decidua vera*, and the other portion called the *decidua reflexa*.

The embryo then becomes covered with two membranes—the chorion and amnion. The amnion is an internal lining

serous membrane, which furnishes a fluid for the protection of the embryo—allows space, facilitates motion and development of the fœtus, and wards off shocks, jars, concussions. The chorion, or outside covering, furnishes a means of communication with the uterus.

The ovum, after its establishment within the uterus, consists of the decidua, decidua reflexa, chorion, amnion, liquor annii, fœtus, and umbilical cord, with one extremity attached to the child, the other to the membranes at the point of attachment in the after-birth. The after-birth, or placenta, is a plexus of vessels by which the circulation is maintained between mother and child, and by which the latter is nourished. When of full size, it is from six to eight inches in diameter, and its thickness varies from a line to one inch, or more, at its centre. It has two surfaces: one attached to the uterus, which is rough, spongy, traversed by ditches; and the fœtal side, which is lined by the amnion, which is smooth.

For the first three months of intrauterine existence, this twig of humanity is termed an ambryo; the latter six, a fœtus. As soon as impregnation takes place, the walls of the uterus become greatly infiltrated with blood, which increases the size of the vessels from being very small and convoluted, to that of large and straight; the muscular fibres grow with perfect regularity. This increase of growth and development for the first three months is very great, so much so that the specific gravity of the uterus is so much that its broad ligaments are unable to hold it up, and it descends very low into the cavity of the pelvis, often nearly protruding. After the fourth or fifth month this difficulty is entirely obviated, by the uterus floating above the pubes; and at six months it is still higher. After the fifth month there is a gradual distension of the body of the uterus, which encroaches upon the neck, distending it, merging it into the body, and causing it to become shorter and shorter, until, from the eighth to the ninth month, it is entirely obliterated; that is, merged into the body.

Signs and Symptoms of Pregnancy are divided into *rational* and *sensible* signs. The *rational* signs embrace—

First and Second Months:

A stoppage of the menses, nausea, vomiting, flatness of the abdomen, depression of the umbilical ring, tumefaction and tenderness of the breasts.

Third and Fourth Months:

In addition to the above, there is now a slight fullness of the abdomen, augmented swelling of the breasts, prominence of the nipple, and discoloration around areolæ.

Fifth and Sixth Months:

The disturbance of the digestive organs usually disappears;

abdomen becomes well rounded and full, and the uterus can be detected above the pubes; fluctuation can be detected; and the color around the nipples becomes brown.

Seventh and Eighth Months:

Abdominal tumor large; discoloration of the skin of the abdomen common; often varicose veins of the leg, labia, vulva; vaginal granulations; leucorrhœa, pruritis, and real copper-color around nipple; and suppression of the menses through the entire nine months.

First Half of the Ninth Month:

Vomitings liable to reappear; the abdominal swelling is so great that the skin of the abdomen is stretched, tense; there is difficulty of breathing; œdema of feet.

Last Half of Ninth Month:

Vomiting ceases; abdomen relaxes; uterus descends; there is less difficulty in breathing, but more in walking; often difficulty of urinating—sometimes suppression, in other cases an inability to hold it; often piles; varicose veins of the leg; pains in the loins; cramps in the legs; colic, etc.

The *sensible* signs embrace—

First and Second Months:

Augmentation in the size and weight of the uterus causes that organ to descend low down in the pelvis; it cannot be moved easily; its walls touch the neck, which is directed downwards; the orifice or mouth is rounded, swollen, and a slight softening of the lips.

Third and Fourth Months:

The fundus of the uterus rises above the pubes, and a rounded swelling can be detected by palpation. Making the patient stand up, and putting the finger on the os uteri, and lifting it up, it drops suddenly down on the finger.

Fifth and Sixth Months:

The fundus can now be detected below the umbilicus; there are active movements of the foetus; foetal heart can be detected distinctly, indeed, it is very perceptible. The uterus can be mapped out, fluctuating, rounded; and the lower half of the neck of the uterus is softened, and the neck now begins to lose itself in the distension of the body.

Seventh and Eighth Months:

The increased size of the uterus and abdomen; the fundus of the uterus is three finger-breadths above the umbilicus at the seventh month, four or five at the eighth; movements of foetus stronger; foetal heart very clear; neck disappearing in the body.

First Two Weeks of Ninth Month:

The fundus of the uterus reaches the borders of the false ribs, clear up to the stomach; foetal heart very strong; neck of the

uterus gone entirely into the body; the mouth of the uterus open.

Last Fortnight:

Fundus sunk low down; movements active; mouth of uterus open, soft, dilatable; the whole cavity of the neck becomes confounded with that of the body.

The entire period of pregnancy occupies nine calendar months, or forty weeks. Time varies somewhat, as to whether conception took place immediately before or after menstruation.

Pregnancy may be protracted in some rare cases; that is, carried out beyond two hundred and seventy-eight days, the interval between the last day of the menstruation and the expected confinement, and at least a fortnight more than this. There is no very exact time, or number of days, to which pregnancy may be protracted; still, it would be safe to maintain that in no case can it be prolonged over three weeks beyond the natural period.

Development of the Fœtus.—Fifteen days after the ovum or egg appears in the uterus, it is a gelatinous, semi-transparent, flocculent, greyish mass; *at thirty days*, the size of a large ant, and from three to five lines in length; *at six weeks*, ten lines in length, about the size of a bee, but some of the organs, in a very rudimentary state, visible; *at two months*, two inches long, weighs two ounces, and ossification has commenced at some points; *at three months*, three and-a-half inches long, weighs three ounces; umbilical cord well formed, and genital organs distinct; *at four months*, five to six inches long, weighs from four to five ounces; *at four-and-a-half months*, quickening, or motion is felt by the mother, or by placing the cold hand on the abdomen, and it is now from seven to nine inches in length, and weighs from nine to ten ounces; *at six months*, parts pretty fully developed, and weigh from one to two pounds, and its length from nine to twelve inches; *at seven months*, all parts are perfectly developed; weighs from two to three pounds, and in length from twelve to fourteen inches, or more, and perfectly developed; *at nine months*, usually twenty inches long and average weight seven pounds; bones of head firm; ossification more complete, and all the organs capable of performing their natural function.

Some variation in the above, but it gives the general average.

There may be several eggs fertilized, so that there may be twins, triplets, or quartlets. Pregnancy may occur outside of the uterus, extrauterine, it may take place in the ovary, and the embryo develop there; or it may be developed in the fallopian tube, or in the abdomen, or the ovum may find its way into the muscular coat of the uterus and be developed. The consequences of such are usually serious, causing inflamma-

tion, ulceration, suppuration, internal hemorrhage, and death to the mother.

When pregnancy takes place, and the woman knows she is in that state, she should eat the best of food, take moderate exercise, but avoid hard work or any strain, and above all, keep her bowels regular by eating sufficient fruit, or else enemata of milk and water. She should make a regular habit of either sponging or bathing the entire body once a day. All gloomy or idle fears should be banished; no tales of woe or sorrow told in her presence; her surroundings should be of the most agreeable kind, and she should place her trust in the benevolence, mercy, and wisdom of her Creator. Her clothing should be flannel, next the skin, at all seasons; she should have abundance of sleep, and all symptoms in this state should be managed with as few drugs as possible. The sickness of the stomach is one of the earliest of all symptoms, and should be treated with the plainest bitter tonics.

Vomiting of Pregnancy.—The morning sickness, with or without vomiting, is one of the earliest and most persistent of all the symptoms of pregnancy. It is due to a great variety of causes: it may be purely reflex, an irritation transmitted from the uterus to the co-ordinating chemical centre at the base of the brain; this is the most common kind—a morbid enervation, a reflex sensation. This is frequently bad, and sometimes fatal it usually ceases after four-and-a-half months, but may continue all the time. It is arrested when the fœtus dies, or by abortion, miscarriage, or delivery, at full time. It is not accompanied by any grave disorder, except deficient secretion.

Other cases depend in a great measure upon a catarrhal condition of the salivary glands of the mouth, salivation, catarrh of the stomach and duodenum, and slight jaundice, and those cases are very liable to abort. But there are other kinds of vomiting which prove fatal suddenly and unexpectedly, without any apparent cause. Vomiting is sometimes due to a degeneration of the glands, such as the liver and kidneys, which is common in healthy pregnancy and nursing. Like the watery blood of a pregnant woman, it is not called a disease, but a normal condition. This degeneration, however, is dangerous to women in a variety of ways. In nearly all fatal cases of vomiting, during or immediately after pregnancy, there is less or more jaundice or uræmia; in these the liver and kidneys have suffered, and the fatal result is preceded by lethargy, coma, if not a discolored skin. Here death results from a granular degeneration. Even slight vomiting and jaundice with or without albumen in the urine, are dangerous and often fatal in the puerperal state. Decided yellow atrophy of the liver is only present once in a thousand cases of pregnancy,

whereas uræmia is common one in five hundred cases. Still there are a minor class of cases that must be looked upon with suspicion. These conditions are not to be laid to pressure of the gravid uterus upon either the liver or the kidneys, for such does not exist, if at all, until the later months. No definite line of treatment can be laid down for any one case. Remedies must be tried, and if found successful persevered with.

The recumbent posture should be maintained till one hour or more after the morning, or other meal. Bowels must be kept regular.

A cup of strong coffee, or caffeine, or guarana, could easily be tried; often acts promptly.

Carbonic acid gas acts as a stimulant to the base of the brain, and could be tried in the form of champaign, apollinaris or clysmic water, soda water, or tartaric acid and soda.

Pure stomach sedatives are to be found in the oxalate of cerium in five-grain doses thrice daily; or in the secondary action of ipecac in one-eighth, not more than one-fourth-grain doses thrice daily.

Pepsin and ingluvin before meals are often of great utility in arresting the vomiting, and deserve a fair trial. Whichever is selected should be given in large doses; they often act like a charm. There can be little doubt that before meals is the best, and in large doses, so that the stomach will make as little demand on the anæmic nerve-centre for secretion as possible.

Hot applications over the stomach may be tried. Milk and lime-water in small quantities. Bitter tonics, as chamomile flowers, columbo, made into a tea and drunk before meals, are sometimes of service.

Depraved Appetite.—An abnormal form of appetite, in which there is a craving, or longing, or intense desire, for very remarkable substances, as sand, cinders, slate-pencils, chalk, clay, coal, sponge, candies, and other articles.

The primary cause is no doubt one of nervous prostration or exhaustion in the co-ordinating chemical centre in the brain, bulb, and cord, brought into activity by pregnancy, uterine irritation, chlorosis, masturbation, worms, or some reflex irritation transmitted to those weakened or anæmic parts.

There is usually associated with it pallor, anæmia, mental depression, emaciation, colicky pains, diarrhœa, acidity, and symptoms of nerve-tire or debility.

The best remedies are port wine and Peruvian bark; bitter tonics, as golden seal; moderate exercise and healthy amusements, bathing, friction, and other means to improve the health.

If not pregnant, more active measures should be resorted to, as seclusion, rest, massage, electricity, general alterative and tonic course for a few months.

General Symptoms of Pregnancy.—The large proportion of the symptoms of pregnancy are reflex; that is, they are dependent in a great measure upon some loss of tone, or weakness of the co-ordinating chemical centre at the base of the brain; or impaired vitality of the medulla oblongata, or debility of the spinal cord; and when pregnancy, or any condition of molecular activity of the uterus takes place, the excitement is transmitted to the bulb and cord directly from the uterus to those centres, and thence to the weakened nerves; hence we have toothache, salivation, if the nerves of the mouth are weak; *nausea, vomiting, headache, heartburn, water-brash, constipation, or diarrhœa*, if the nerves of the stomach have suffered a partial loss of vitality; or there may be faintings, loss of voice, difficulty of breathing, sleeplessness, hypochondriasis, convulsions, difficulties of sight and hearing; chorea, epilepsy, and neuralgic pains in the breast or elsewhere.

Now, with reference to all these and numerous other symptoms, we say palliate them the best you can, and, above all things, avoid medication in pregnancy if possible. Most physicians treat those cases shamefully by pretending to give drugs, while they are simply sugar pills, or sugar of milk, so as to operate on the credulity of the patient and her friends. This is very wrong; it is taking money under false pretence.

No nitrous oxide gas should be administered for the painless extraction of teeth, because the nitrate of ammonia, of which it is composed, increases the alkaline constituents of the blood, and is very liable to cause abortion. The pain of toothache can be relieved by the local application of morphia, or aconite, belladonna, and chloroform.

Symptoms of indigestion can be relieved with pepsin or bitter tonics, diarrhœa arrested with the opium and tannin pill, and constipation relieved by fruit. In cases of loss of voice, it can usually be relieved by inhaling the vapor of warm water, with a little ammonia; fainting or difficulty of breathing can usually be ameliorated by some diffusible stimulant; sleeplessness or hypochondriasis, by extract of hops or coca; and neuralgic pains in the breast, by heat.

With Regard to Convulsions, Epileptic Fits, Chorea, the best plan in all cases is to suspend them, and let pregnancy take its chances. When we estimate the devastation that these would, if permitted to continue, produce in the nervous system of the mother, there can be little doubt about the use of our most powerful remedies to prevent them; and those very drugs are abortive in their action, because it is really impossible to treat those fits with success without bromine, iodine, potassa, snakeroot.

Irritable Bladder.—In the large per cent. of cases, where a

pregnant female wants to make her water every few minutes, it is due to the presence of uric acid in the urine, which can be remedied by a change of diet and benzoic acid, without the use of other drugs, that might be likely to injure the fœtus or cause the patient to miscarry. Still, the irritation may be due to something adjacent, as caruncle of the urethra; lupoid, or other ulcers around the hymen; sympathy from an inflamed uterus, rectum, or other adjacent parts; and other forms of irritation. If the case is bad, it must be remedied at all hazards, the mother's life being paramount in all cases. Mild but efficient means must be resorted to, as alkalies, as sweet spirits of nitre, to keep urine alkaline; suppositories of belladonna and opium, and general treatment as laid down under that head.

Menstruation During Pregnancy and Lactation.—The appearance of the menses during pregnancy or lactation, or both, is to be looked upon as a grave condition, which weakens the mother and impairs the vitality of the child, causing it to be very tubercular.

The causes that have rendered this so very common these last twenty years are somewhat obscure. Some attribute it to the excitement incidental to a state of high civilization, with its worry and care; others assert that it is the influence of the modern class of literature, which has wrecked the frame-work of the female organism; others, to the sewing-machine and like occupations; while another class claim it to be caused by sexual excesses and stimulating diet. Certainly it is some defect of modern civilization, for thirty years ago the condition was unknown. Occurring during pregnancy, it is to be carefully distinguished from those cases where the after-birth is over the mouth of the uterus, when, after the fifth or sixth month, there is a bloody dribbling from the uterus daily.

The appearance of the menses during pregnancy and nursing is to be regarded as a weakness or want of vitality of the uterus and ovaries, and every possible means taken to arrest it by proper treatment. The patient must avoid all excitement; take a good deal of rest; not to use sewing-machine, nor go to shows, theatres, balls; not to read light or fictitious literature, but solid history; and avoid the other causes. She should eat well; have perfect freedom from worry, care, or work; take the struggle for life easy; and as remedies, the cold water hip-bath; port wine and Peruvian bark, the viburnum compound, the mother's cordial, the stylosanthes—one of those remedies taken three times a day. The stylosanthes has a most remarkable quieting action on the uterus; although not much used, it is here invaluable. Use remedies persistently until it is arrested.

Albuminuria, or Dropsy, in Pregnancy.—Bright's disease of the kidneys often makes its appearance in pregnancy. The

question at once strikes one: What has the kidneys to do with the uterus? The urinary and genital organs are closely connected, so much so that they sympathize strongly with each other. True, the dropsy and albuminuria are most common after the four-and-a-half months, when the uterus floats up, and to some extent presses on the kidney. Those cases are to be looked upon as very grave; they usually involve the death of the fœtus, by causing a disease of the after-birth from the watery condition of the blood present, and latterly the death of the mother. The usual course of treatment cannot be adopted, as it will cause abortion and fatal results. In some rare cases, benzoic acid causes a rapid disappearance of both albuminuria and dropsy. It is given in ten-grain doses thrice daily. Astringent tonics, as port wine and cinchona, or port wine and gallic acid, may be tried.

Pruritis of the Vulva.—The distress that pregnant women sometimes experience from itching about the entrance of the vagina is often terrible.

The cause is one or other of two things: either the sugary pabulum of diabetic urine, or the alteration in the nutrition of the parts from neurosal impairment, or the two combined.

In all cases there is a *fungus organism* present, and requires the use of a parasiticide.

Borax is the best and safest remedy. It is well not to use it with glycerine, as the glycerine has such a strong affinity for water, and often aggravates. A strong decoction of poppies or elder flower water can be used with advantage, and they form excellent vehicles for the borax. The boracic acid is also excellent, but not so soluble in water as the plain borax. No internal treatment of any use. The difficulty disappears as soon as confinement is over, the sugar disappearing from the urine.

Eruptions and Excoriations about the Pudendi are usually of the character of eczema, and it is also due to the saccharine urine dribbling down, and acting as a local irritant; and when the eruption is once caused, this renders it intolerable and intractable, and excessively irritating in this region, and often incurable as long as the pregnancy exists. The changing of the diet, forbidding sugar, and using light animal food, with eggs, milk, fish, etc., does not do much good. Vaseline or ozone ointment can be smeared over the part three or four times a day. It will palliate the irritability at least, which is about all that can be done. The difficulty disappears promptly as soon as labor is completed.

Any cracks or abrasions should be treated by an infusion of poppies, followed with ozone ointment, which should be used freely.

Piles are usually the result of liver trouble, and must never be treated by sulphur, nux, mandrake, or other liver stimulants, because those drugs are active abortive remedies. Keeping the bowels regular with fruit, diet, or senna and prunes, and local cold water baths, is all that should be attempted.

A *watery*, or other discharge from the vagina, may be relieved with port wine and cinchona.

Swelling of the labia is to be relieved with rest.

Varicose veins of the limbs to be relieved by a bandage or elastic stocking during the day, and the limb bathed morning and night, well dried, and then rubbed with extract of hamamelis.

Cramps in the limbs are to be relieved by rubbing.

Inability to hold the urine, or retention of urine, is usually due to pressure and debility. Rest, and the use of the mother's cordial, or the viburnum compound, relieves this difficulty.

Although we thus deprecate drugging during pregnancy, and recommend palliation and rest, yet it is not good to the health of a pregnant mother that she house-up too much. She needs gentle, moderate exercise and change, as conducive to a high state of mental and physical vigor. She should not exhaust her body by work, nor her brain by worry or study. She should cultivate the higher and holier attributes of her nature; avoid as much as possible sameness or monotony. Avoid literary pursuits above all things, as it wearies the mind and arrests brain development in her offspring.

Undue tightness of the abdomen is best relieved by rubbing it with warm olive oil once or twice daily.

Spurious Pregnancy.—This is a peculiar condition, which sometimes gives rise to all the symptoms of true pregnancy, even the morning sickness, the suppression of the menses and the progressive enlargement of the uterus having a perfect resemblance to a genuine gravid uterus. It will even communicate the sensation of movement, or tenderness on pressure, and dullness on percussion; the breasts may increase in size, and even secrete milk, and the progressive enlargement of the abdomen may continue for nine months, and the phenomena of labor supervene. The pains may even come on and succeed each other, becoming stronger and stronger, and latterly ceasing by a return of the abdomen to its natural state, and perhaps a slight fever. On an inspection of the tumor, it is most generally in the centre of the abdomen. The navel is never protruded; there is no striae over the abdomen. On feeling it with the points of the fingers, the tumor is elastic, and its boundaries can be traced easily. It has no connection with the liver, spleen, ovaries, or uterus; no sign of foetal heart or rumbling noises.

The cause of this *phantom tumor* is some exhaustion of the

cord, bulb, and base of brain—a true condition of anæmia, exhaustion, and irritation which is transmitted to the diaphragm and other abdominal muscles, which causes contraction, and gives rise to an appearance exactly resembling a body, or gravid uterus, or tumor. If there is any doubt about it, place the patient under chloroform, when the contraction will entirely disappear. In such cases, when carefully examined, it will be found that the general health is feeble; there is great exhaustion of the nerve-centres, or strong hysteria. We use the term because we have no other by which we can describe the morbid condition of the cord that is present. There is likely to be associated with it irregular uterine functions, dyspepsia, ovarian irritation, or some form of chronic disease. Same treatment as for *Hysteria*.

Deformities and Mutilations.—It may be laid down as a general rule that all deformities, such as hair-lip, club-foot, imperfect arms, etc., are due to incompatibility of temperament or close consanguinity; whereas mutilations, monstrosities, are due to shocks, frights, impressions, sights made upon the mother during the embryonic period, the first three or four months of intrauterine life. Probably amputations of the arms or limbs may occur later. The prevention of deformities is in the hands of the parties entering the matrimonial field, and should be regulated by stringent laws; whereas the prevention of mutilations is in the hands of the mother alone; she should avoid reading all dime-novels, fictitious literature, going to theatres, witnessing the killing of fowls or animals, or of seeing, hearing, or feeling, any strange or abnormal thing that would be likely to vividly impress her.

LABOR.

Six weeks or two months before the termination of pregnancy, it is expedient for the coming mother to take a dose of castor oil once or twice a week, not so much for a free unloading of the bowels as to get up a good secretion of milk; for there is no drug like the oil for this purpose. It is also a good plan to let the patient take some remedy to strengthen up the womb for its approaching work. There are three good preparations for this purpose, namely: the mother's cordial, the viburnum compound, and the fluid extract of stylosanthes; either of these, the one alternately with the other. The latter-mentioned remedy is a most marvellous one in rendering labor easy; relieves the distress; gets away with false pains; is a valuable parturient, rendering the first stage of labor short and almost painless. It is an invaluable drug to all child-bearing women. As we have already stated, it should be commenced six or eight weeks before the expected crisis.

Labor may be defined to be the expulsive efforts of the uterus and mother in evacuating the contents of the uterus, the fœtus being a mere passive body. Mental excitement or impressions may excite or suspend labor, but cannot prevent it.

Symptoms of labor may be briefly enumerated: When the fortieth week has expired, there is likely to be some nervous depression, which is manifested by a rigor or chill of more or less intensity; a frequent inclination to make water, or else a suppression of it, bearing-down; subsidence of the abdominal tumor; secretion of mucus, often streaked with blood, called the show; aching in the hips or thighs; sometimes cramps, and a dilatable condition of the mouth of the womb, with alternate contractions, accompanied with pain. In some cases the pains are false or spurious. They are said to be such when the mouth of the uterus remains unaffected by them. These pains in some ladies are apt to come on several days before the genuine, and are apt to worry or annoy the patient; and in all cases in which you are satisfied that they are false, they should be stopped by an injection of starch and laudanum into the rectum.

True pains are produced by contraction and drawing up of the womb, which first expels the slimy matter, mixed with blood, called a "show." As soon as this appears, the mouth of the womb at each pain begins to open and widen itself, so as to permit the contents of the womb to pass.

When labor begins, the mouth of the womb is opened by the longitudinal fibres which are opposed to the circular.

Labor is very correctly divided into three stages: the *first* is the period of dilating of the mouth of womb sufficient to let the head of the child pass, and occupies more than two-thirds of the time of a labor; the *second* is the expulsion of the child from the uterus, and occupies much less than a third; and the *third* stage is a complete expulsion of the membranes and placenta.

The first pains are short, come on at long intervals; the patient is restless under them, first hot, then cold, and not infrequently sick at the stomach. She may be griped, belches wind, or passes it from the bowels, which should not be restrained by false delicacy. By and by pain passes to the back and then to the bottom of the belly, and there is usually a desire to urinate or to go to stools, calls that are to be obeyed, never neglected. Just at this time she is likely to become fretful, uneasy, and may ask for something to hurry up pains; but be patient, wait a little, don't force nature to premature efforts; let her rest while nature rallies, and the womb gradually opens.

The duties of the nurse, midwife, or physician, if the presentation is all right, consists in aiding, if needed, giving consola-

tion and encouragement; warm drinks; watching the case carefully and closely, and rendering assistance when necessary.

During the First Stage: At this stage, it is unnecessary for the patient to go to bed, only once in a while, for examination. She is better during the greater part of the first stage, moving gently about the bed-room, and when a pain comes on, be in a position to get hold of something. During such pains a doubled up position, either sitting on a low stool, or kneeling, answers well. When this first stage is nearly over—that is, dilating the neck of the womb completed, the patient must go to bed. The best position for American women is the left side, near the foot of the bed, so that she can fix her feet firmly against the bed-post; her hips from ten to twenty-four inches from the edge of the bed. If attendants are few she could have a sheet attached to the bed-post, so she could hold on to something from below; her legs bent, a pillow between her knees, and her head also supported by a pillow. The bed for about a yard and-a-half square should be protected with a gum, or oil-cloth spread, and two or three quilts doubled up over the same, so as to take up the discharge. Irish or German women, with straight sacra, do fully as well on their backs, or even on their knees, in the bed, or on the floor, until they are well over and into the second stage. Once it is ascertained that the presentation is a good one, it is unnecessary to annoy her by repeated examinations.

All examinations should be made during a pain, and continued when the pain is off. If the pains are good, efficient, and the mouth of the womb well dilated, parts well lubricated and the membranes seem to act as a retarding element, they can be ruptured by roughening the nail of the index finger; but if they do not seem to retard the labor, they may be let alone, until they almost protrude externally, as they act as a good dilator.

The bag of waters differs in size in different cases, according to the amount of water present, and is, always, large or small, a good dilating body, continuing to force open and widen the mouth of the womb, until it is open sufficiently to permit the head of the child to pass. It also distends or dilates the vagina.

In some cases, ladies, by excessive or violent movements, cause a rupture of the membranes, a week or more before labor; then labor is dry, and is not nearly so easy; in other cases of sudden or hurried labor, the membranes, water, child, and after-birth are expelled in a mass, then the child is said to be born with a *caul*. When they burst at the proper time the pains continue, and the child gradually enters the world. If the mouth of womb is dry and rigid, so that the pains are inefficient and the first stage prolonged, this rigidity must be

overcome in various ways,—enemata of tepid water and lobelia into the rectum, steaming the vulva, perinaeum, and anus, by causing the patient to sit on a chamber partially filled with boiling water in which a plug of tobacco has been cut up; or by smearing the rigid mouth with belladonna ointment, or introducing a pastile of belladonna and opium into the vagina; and if it does not yield, these means may be repeated, or they can all be used. A decided nausea has an excellent effect.

When the head is emerging under the arch of the pubes, the perinaeum should be supported with the palm of the left hand, and retained there till the head is free from the vulva.

If the perinaeum is tough, rigid, not easily distended, and thus obstructs the exit of the head, it may be well oiled, and hot towels—as hot as can be borne—applied, one after the other, so as to relax it. If this is unavailing, wring the towels out of hot lobelia or tobacco-water.

When the head has made its exit, do not pull or drag it, but simply hold it in the hand until the next pain, and, when it occurs, have the patient hold her breath well and bear down, when the body will be expelled. Indeed, all through the case the patient must exercise great fortitude, patience, and forbearance; be quiet and docile, and on no account must she throw up her arms, stretch herself, or let go her breath in the middle of a good bearing-down pain or effort. Some ladies are remarkably sensitive, and the greatest delicacy and kindness should be observed towards her in all things. Her person must not be exposed. There is little use in the horrid custom of some physicians, inserting their hand up the vagina in the form of a cone, and holding it there. Such a practice is uncalled for; more good can be obtained by gently rubbing her abdomen with oil. The fantastic manœuvres of self-conceited, ignorant physicians in wearing towels on their arms, sleeves; putting on aprons, as if it was a butcher shop, and such like, are revolting to the sensibilities of a refined lady. Such scoundrels should be kicked out.

Cool, firm determination, a cheerful disposition, with the use of warm stimulating drinks, are of more utility than a lot of humbug. We must guard against too sudden a delivery, with membranes, water, and after-birth altogether, as that is very apt to be followed by hæmorrhage. After the delivery of the child, lay it on the right side, remove any mucus from its mouth, and give it a very gentle beat on the back with the open hand. Usually this is sufficient to establish respiration; if not, artificial respiration, or otherwise, should be resorted to—(see *Asphyxia*). Respiration may be suspended for over forty minutes, and resuscitation may take place; so our efforts should continue as long.

As soon as the child cries lustily, and there is evidence of a proper supply of arterial blood, that is the time to ligate the cord, applying the first ligature from three-fourths to one inch from the belly, the other one two inches further on, and then dividing or cutting it between the two. As soon as this is done, wrap or roll up the child in a blanket, and hand it to the nurse; then attend to the mother, and the removal of the after-birth. On placing your hand over the abdomen, you will find the uterus either contracted or relaxed. If contracted, the after-birth may be in the vagina, and a cough, or sneeze, or blowing with some force into the palms of both hands, or a gentle bearing-down effort, or slight traction on the cord, may cause it to come away. As soon as it approaches the vulva, it should be grasped and twisted round several times, so as to twist the membranes, and have them come easily and entirely away.

If the uterus is relaxed, and after-birth attached, resort to frictions with oil over the abdomen, so as to cause contraction; allow a little rest till the vital forces rally. Administer a little capsicum in warm sweet milk, or a little quinine, or a little hot punch, so as to establish permanent tonic contraction of the uterus. If there is retention of the after-birth after tonic contractions have taken place, use friction, shampooing, dry heat to the abdomen, enemata of tepid water into the rectum, and administer stimulants. These means failing, after waiting perhaps one or two hours, introduce the hand in the form of a cone—the back of it well oiled—into the cavity of the uterus, and gently grasp the placenta, or after-birth. It is very probable that the presence of the hand will cause such violent contractions, with expulsive pains, as to cause it to be thrown off. If not, detach it carefully, and leave no portion behind; wait until a pain comes, when withdraw the hand in harmony with the bearing-down effort. This is best effected with the patient on her back, knees drawn up—and I will repeat, let it be done with great kindness and gentleness. After it is removed, the patient should be carefully bandaged, from the middle of the thighs to the bottom of the sternum, with a thin compress over the uterus. In applying this bandage, it should be pinned from below up; a pin every inch, and free from all wrinkles. Then a dry, warm diaper should be pressed against the vulva. This, or a similar bandage, should be applied daily, and seen to by the physician or nurse for ten days, and it should be worn for at least two or three months. On the re-application of the bandage, it is well to sponge the abdomen with a little harts-horn and tepid water; dry off well, and then use either bay rum or cologne-water. By this means all the cracks, fissures, crevices, of the abdomen are avoided; also enlarged or pendu-

lous abdomen. A woman can be well preserved if due care is taken of her, even after she has had a dozen children.

After the bandage is applied, the patient should be moved up to her proper place in bed, and a doubled quilt placed underneath her. The use of the bandage after delivery has many advantages. Besides maintaining the natural condition of the abdomen, *it* stimulates the uterus to contraction, and thus prevents hæmorrhage; *it* rests the broad ligaments, and gives support, and prevents falling of the womb; *it* is, besides, a great safeguard and comfort to the woman, and on no account can it be dispensed with. Always pin from below up, firm at first, but always easier as you progress upwards.

If there is any disposition to hæmorrhage, in addition to the roller put the child to the breast at once, or as soon as possible after the mother has rested. The first cathartic should be given after the mother has had a sleep; and it should be oil, on account of its influence in secreting milk. All through, during and after labor, the bladder should be carefully watched, especially if there is any retention of urine.

The diet of the mother, if not very feeble, should, for about nine days, consist of plain oatmeal gruel, sago, arrowroot, rice, tea and toast, beef-tea. As a rule, beef, mutton, chicken, game, or high-seasoned food, or stimulants, should be avoided; but after the ninth day, a generous and nutritious diet may be allowed, even as liberal as the patient may desire, avoiding all indigestible articles, as veal, pork, salt meat and fish, pie-paste, cabbage, etc.

The discharge that comes, or takes place from the uterus after delivery, is called the *lochia*, or cleansing, and should continue from two to three weeks; if longer than three or four, means should be taken to tone up the uterus by port wine and Peruvian bark, mother's cordial. If it should suddenly cease inside of the first two weeks, measures should be taken to re-establish it.

The most common causes that are likely to cause its arrest, are cold, cold drinks, ice; sudden mental emotion, or excitement, or worry, or passion.

To cause its re-appearance, try heat to the vulva, over the uterus, and to the feet, with infusion of catnip, and a few drops of the tincture of aconite. If that fail, try serpentaria compound, in half-teaspoonful doses, in some warm tea, and administer enemata of flaxseed tea, with laudanum. If that fails let patient drink linseed tea, warm, with tincture of snake-root. If the stoppage, or arrest of the *lochia* takes place inside of the first ten days, we may entertain apprehension of its absorption into the blood, and puerperal fever; later than that it is not likely to be attended with such grave results. The

prevention of its disappearance, by keeping the patient quiet, free from all care or anxiety, by a strict avoidance of all cold drinks, and inculcating other elements of comfort, which are of great consequence, will almost infallibly ward off this complication.

The uterus may, if ergot or forcing-powders are being administered, contract on the after-birth, the mouth and neck close, and the lochia cease. This is a bad state of affairs, induced by the action of this drug, to whose use many mothers' lives have been sacrificed. The ergot stimulates the lower portion of the spinal cord, and thus contracts the entire uterus, neck and all, beside rendering the blood clotty.

If this should occur, administer opium freely to relax the neck and mouth of the uterus; throw up tepid or warm enemata into both vagina and rectum; scorching hot pillows to the loins; heat over uterus. If not successful in getting the fingers in after it, try inhalation of a few drops of chloroform on a towel—not enough to cause anæsthesia, because the blood is thick and heart feeble. If not successful then, try a warm enemata of lobelia, and administer lobelia in small doses, not enough to vomit but to nauseate well, and then try to remove it. This failing, try belladonna and opium pastiles and suppositories; they not successful, inject the uterus with a strong infusion of chamomile flowers and borax. That failing, leave a catheter in the uterus for a few hours, well up to the fundus, so as to try and originate pains or contractions. If all means fail in this crisis then inject the uterus thrice daily with a tepid injection of water and permanganate potassa, and see that it all escapes; and keep the patient under opium.

Retention of the Placenta is a grave affection, there being great danger of blood-poisoning, metro-peritonitis and puerperal fever. It may be remarked that, as a class, our women do not bear injections into the uterus well, and they in themselves are dangerous from the injection finding its way into the uterine sinuses, thence into the blood, and causing death by producing acute, fatty degeneration of the liver.

Every resource must be brought to bear on the case: if one or two fingers can be inserted there is no trouble, aided by the lobelia and belladonna, both by vagina and rectum, and internally.

Hour-Glass Contraction of the uterus and retention of the after-birth, is also quite common, and in a great measure is due to the use of ergot in labor. Hour-glass contraction is a condition in which some nerve that supplies the middle of the uterus is weak, and where it receives an undue amount of stimulation or irritation from the cord, irritated by ergot, which causes it to contract in the centre with the after-birth in its

upper half. This is not so grave an affection as the contraction of the os and neck, because when the system is well-relaxed with lobelia enemata and internally, if necessary, it readily yields, and by gentle manipulation, one finger and then another can be inserted, until the whole hand gets through the obstruction, and seizes the after-birth and withdraws it. Treat same as *Retention*.

Can it be wondered at that we have so many complications of labor, when so much ergot, or forcing-powders are given? Our women, the best nurses in the world, are spoiled, their milk rendered scanty, insufficient, or none at all, by the system of senseless drugging during labor. It is not the women, but the utter incapacity of the physician that is at fault. Even the infinitesimal pellets contain enough of ergotine and atropine to give rise to untold trouble.

The breach, or the feet, knees, buttocks, are regarded as natural, and are next in frequency to the head, but they are not such good points for dilatation; consequently, the labor is very slow or prolonged, and even when the feet, knees, buttocks and body are expelled there is danger to the child, if the head is not delivered, by pressure upon the cord. If flooding should take place during natural labor, enjoin rest, horizontal position, and a plug. If these means fail, endeavor to excite uterine contractions with quinine, capsicum, corn-smut, mistletoe. If still persistent, and the os uteri dilatable, rupture the membranes and introduce the hand into the cavity of the uterus, seize the feet and bring them down with their toes pointing to either thigh of the mother, so as to bring the long diameter of the head into the long diameter of the pelvis.

In convulsions during natural labor, if the mouth of the womb is rigid, administer opium and lobelia, by the mouth and by enemata; if they recur, inhalation of chloroform; and as soon as the mouth is dilated sufficiently to admit the hand, insert it, seize the feet, and bring down, with the toes pointing to either thigh; and deliver under chloroform and hypodermic injection of morphia.

If fainting fits should occur, and they are due to debility, or some peculiarity of the nervous system, diffusible stimulants should be given; but if they are due to internal hæmorrhage (concealed), turn and deliver.

If there is a rupture, and danger of strangulation, and the mouth of the womb is dilatable, turn and deliver.

In some cases the after birth, instead of being located at the fundus, is implanted right over the mouth of the uterus. If an attendant in the family, the mother generally calls attention to it as early as the fourth month, by a dribbling or oozing of blood, which increases in frequency and quantity as the neck

of the womb merges into the body during the later months, and at full time it is quite considerable. On making an examination with the finger, a soft, spongy mass can be detected over the mouth of the womb. In all such cases it is well to have another physician in attendance besides the regular one, not for aid, but to share the grave responsibilities of such a case. Wait until labor sets in; if there should happen to be hæmorrhage, use the plug made of several fine sponges until the mouth of the womb is sufficiently dilated to admit the hand; then push away the after-birth on one side, whichever yields most readily; then insert the hand, rupture membranes, and bring the feet down, toes to the thigh of the mother. Before resorting to this, either brandy or capsicum should be given, with infusion of good, fresh ergot; the abdomen rubbed with warm oil, and every means taken to facilitate delivery. Promptness of action and a clear head are necessary in this crisis, in order to save either mother or child. When turning is once consummated, there is little of further hæmorrhage, because the head of the child effectually blocks the mouths of the bleeding vessels. If no physician is near, the nurse or midwife must pursue the above course, without aid, for if she waits, death will inevitably take place. There should be no interference until the mouth is dilated to admit the hand, only by the plug, but everything be in readiness.

In case of presentation at the shoulder-joint, it is easily recognized by the child lying crossways in the abdomen, head at one side, buttocks at the other, by the sharp point of the shoulder or the descent of the arm. In cases of this kind, delivery cannot take place, and it is necessary in all cases to turn. So wait until the mouth is sufficiently dilated to admit the hand; then rupture the membranes, if still entire, and proceed to turn. In doing this, the patient should be placed upon her back, knees drawn up; the back of the hand of the operator well oiled; hand in the form of a cone, gently introduced into the cavity of the womb; seize the feet and bring down, with the toes pointing to either thigh of the mother. If the hand of the child has descended, the palm will either point to the front or the back; this forms an excellent guide to where the feet are to be found. If it points to the front, insert the hand up in front, and there the feet are to be found; if to the back, then in that direction. This saves groping round after the feet. In all cases of turning, or when it is necessary to introduce the hand into the uterus, it should be done during the absence of a pain; and if a contraction or pain comes on when it is so introduced, let it lie flat until the pain subsides, and then proceed and bring down the feet.

After-Pains.—After the first confinement it is unusual to have after-pains, as the uterus does its work with energy, and there is nothing left in it; but after all subsequent deliveries, the uterus is likely to suffer some inertia, and there is apt to be a clot, or a retained bit of placenta, or something which the uterus wants to and tries to expel. It is not to be regarded as a disease, but a healthy condition of the womb. The womb is doing its duty, and, as a rule, if the clot is not very large, the pains are not very severe; but if of great size, then there is considerable pain. There is another condition: a diseased state, in which the recently emptied uterus goes into a most violent and painful contraction, without any discernable object in view; and a severe case of this kind is bad—much more painful than ordinary after-pains, that come on to expel a clot or piece of membrane.

In all cases of after-pains, whether mild or severe, the roller should be kept applied, but not too tight, as it acts as a stimulant to contraction. Opium or morphia, with extract of hyoscyamus, should be given, so as to relax the neck of the uterus; it should be administered guardedly, just enough to relax to permit the egress of the clots, discharge, or cleansing, and discontinued as soon as possible. It is best given with some diaphoretic tea, as catnip, or sweet marjorum, or pleurisy root, or boneset, whichever is most handy. If still persistent, evacuate the rectum by first administering a large dose of castor oil, with twenty or thirty drops of tincture of opium, and enemata of the same. There is scarcely a possibility of a case resisting these measures. Still, if there is, compound tincture of serpentaria could be given, and dry heat applied over the uterus. Better not to give many remedies, as they so influence the secretion of milk.

The Forcing-Powders in Labor.—If there is a drug that should be proscribed or forbidden in or during labor, it is ergot. It is called the forcing-powder, as it is customary to administer it in that shape in hot water or tea, because it is more active in that form. Few doctors or midwives give the wine or fluid extract. There can be no doubt of its action in inducing uterine contractions; but its effect on the blood is highly deleterious, causing embolism of that fluid, and often sudden death after delivery, besides giving us an alarming increase of still-born. There are now so many excellent substitutes, free from all possible objections, that we can afford to lay it aside. For example, sulphate of quinine, capsicum in warm tea or milk, the corn-smut, caulophyllum, external stimulations with oil, or with the battery. Every possible means of increasing the vital action of the uterus should be tried before risking such a remedy in the blood of a parturient woman.

Abortion.—The expulsion of the fœtus from the uterus before the sixth month, is called abortion; after that period, premature labor.

The causes are numerous and variable, as violent mental emotion, fright, passion; the effect of habit; disease, as diarrhœa, dysentery, fevers, disease of the heart, syphilis, acute disease of any kind; excesses, sexual or otherwise; violent exercise, racing, jumping, blows, causing inflammation; drugs, as sabina, aloes, quinine, iodide of potassa, borax. Thickening of the neck of the uterus is a common cause at four and a half months.

The ordinary signs of abortion are: a disappearance of the morning-sickness, flaccidity of the breasts; tenesmus, or bearing-down; symptoms of labor, expulsive pains, and hæmorrhage. This last symptom cannot exist without a partial separation of the after-birth. A rigor, which is almost invariably present in labor at full time, often takes place here, and in some cases with great violence.

To prevent abortion, enjoin rest, quietness, freedom from care and anxiety, recumbent posture, strengthening treatment, cold infusion or fluid extract of the black haw, or port wine and Peruvian bark; opium is the remedy to arrest uterine contractions. No plug of sponge, or any other body, must be introduced into the vagina unless there is excessive hæmorrhage, as its presence excites uterine contractions and expulsion of the contents.

Missed Abortion.—This is not a threatened abortion, nor an imperfect abortion. Threatened abortion is very common at four and a half months, especially if there is the slightest thickening of the neck, for when it begins to stretch and emerge into the body, if there is resistance, there will be irritation communicated to the fundus and contractions. When a woman has threatened abortion, she suffers pain, has a bloody discharge, and mouth of the womb is opened. An abortion may be threatened and averted, and pregnancy go on in a healthy way. There might be an abortion in the case of twins, one aborted and the other remain, and one go on to development. The abortion of one of the twins may be a missed abortion, or the miscarriage of one may be a missed miscarriage.

If the fœtus alone, or the entire ovum alone, comes away, the woman has miscarried, or aborted; it may not be complete, but imperfect. The ovum may come away alone, without the membranes, or the after-birth; or only a portion come away. This is always dangerous, as it is liable to give rise to hæmorrhage or else lead to putrid absorption. This is especially liable to be the case if the abortion has been caused by instruments or drugs, for then there is always less or more endo-

metritis. Imperfect miscarriage invariably induces endometritis in subsequent life.

When a woman has a missed miscarriage, or abortion from a fright or blows, the natural course of events are as follows: The foetus dies, the symptoms of pregnancy are arrested, milk may appear in the breasts, there may be a bloody oozing from the uterus, or otherwise; if the waters are not dried up, they are absorbed, and the contents of the uterus shrivels up and becomes mummified. If the membranes remain entire, absorption is the rule, with mummification. The uterus steadily diminishes in size, but its contents remain and continue up to the full time, when they are expelled. The expulsion is frequently unexpected; happens while standing or defecating, and the mass shrivelled up in a bundle, or rolled up in a parcel, is expelled. The mass is usually fresh, of a brown color, and contains the foetus in the centre.

When such a case as the above is clearly made out, the introduction of a catheter, or catgut bougie, into the uterus for several hours, so as to excite contractions, together with quinine and caulophyllum to stimulate uterine energy, is indicated.

Fœticide.—The moral atmosphere of the American female is tainted by a variety of causes, habits, association, system of living; laziness, amusements, and literature. The latter especially is exercising a baneful influence on her; our modern periodicals and dime novels, the press, that great engine of thought, progress and vitality, sways a corrupt, reckless, and unscrupulous influence, and aids her demoralization by advertisements, and otherwise; nay, may be regarded as irreverent, offensive, and profane; an eating ulcer in the female economy,—fostering a state of things that is sapping the very vitals of our country—one of the most serious and sinister symptoms of general national decadence. Married women trying to escape the cares and responsibilities of mothers, betokens a serious derangement in the body politic, and more so when the entire force of female character is permeated with this one idea, and our clergy powerless to stem this current of national crime. The number of abortions committed in our large cities is enormous; the uninitiated can have no conception of the immensity and gigantic proportions of the crime. Out of the eighty thousand so-called physicians in our country, one-half, at least, are either open or concealed abortionists. There is no crime so common as fœticide; even some druggists and herb dealers could not maintain an existence but by selling drugs to procure abortion. The crime prevails largely, and enters like an eating worm into every condition of society and threatens our very existence as a nation. The abortionists are plying their fearful calling with frightful activity, and measures should be

taken to arrest it. Our people should be instructed regarding the sanctity of ante-natal life, and the fact that there is no distinction in the turpitude of the crime of the destruction of ante-natal, or post-natal existence. The induction of criminal abortion should be made a capital crime, and any one who knows of its commission, made accessory to it.

The induction of abortion is only legitimate when the life of the mother is imperilled by a continuance of pregnancy; that the emptying of the uterus presents itself as the only alternative to save her.

Abortion is the most terrible calamity that can befall a pregnant woman, and it is doubly worse when brought about by malpractice; the number of morbid conditions that follow it are beyond all calculation. The following may be enumerated as a few results that are likely to follow: It gives rise to a habit which nothing can overcome; it causes painful sitting, painful sexual connexion, intrauterine catarrh, catarrh of the neck, falling of the womb, neuralgia of the ovaries, nerve-exhaustion, aching kidney, irritable bladder, ulceration of the uterus, cancer.

Ulceration of the internal cavity of the uterus is a frequent result of abortion. The ulceration follows a previous condition of villosity; the villosity is destroyed and ulceration takes its place, or it may begin with ulceration. It is not common in the young, but in the old, the result of abortion. There are slight bleedings, when the ulceration extends into the cavity of the uterus. If seen early, treat it the same as *inversion of the fundus*, by touching it with tincture of iodine and iodide of potass.

Hæmatocele.—A tumor composed of blood, and enclosed, is a fatal result of the above condition. The blood escapes in various ways, and causes death.

Cancer a Natural Result of Repeated Abortions.—We have elsewhere called attention to cancer of the body of the uterus; but the pre-eminently glandular organ, called its neck, and the internal mucous membrane, are the most frequent seat of cancer of the female genital organs.

The great malignant disease of the cavity of the uterus is *adenoma*, a malignant glandular growth of the mucous membrane, which sprouts forth, and bleeds, and grows, and distends the cavity of the uterus, and fills it up; passes through the cervix, and grows into the vagina, and protrudes at the orifice of the vulva, the whole mass being composed of adenomatous tissue. It is often mistaken for a polypus, or a mere mucous outgrowth or vegetation.

Bloody Tumor of the Labia.—The pressure of the head or of instruments is very apt to cause an extravasation of blood into the labia. Cloths saturated with the distilled extract of witch-

hazel, or tincture of arnica and water, or marigold; and if not speedily relieved, apply a lotion of lime-water and tincture of iodine, or muriate of ammonia.

Inflammation of the Vagina is a rare affection. If it should occur, injections of linseed tea and opium; slippery elm and opium, with opium and gelseminum internally, same as *Peritonitis*; absolute rest.

Puerperal Fever.—(See *Child-Bed Fever*.) If due to suppression of the menses, or retained placenta, wash out uterus once or twice daily with tepid water and permanganate, or withborax; and treat fever same as *Metro-Peritonitis*.

Laceration of the Perinæum.—The greatest care should be exercised to prevent the slightest tear or laceration of the perinæum, by affording proper support; by applying hot cloths, to relax; wrung out, either of hot water or infusion of lobelia. It is most liable to occur in hurried labors, with forcing-powders, or from the reckless use of instruments. If it should occur, the lochia is a great barrier to union, preventing the parts from uniting. As soon, however, as the lochia disappears, the torn edges should be carefully pared, and sutures or stitches inserted, the legs tied closely together, and a catheter inserted into the bladder. If the laceration is extensive, it may be necessary to resort to quilled sutures, to keep the parts in perfect apposition. This stitching is better to be done at once, for if allowed to remain, it has a depressing effect on the patient's mind, and it is a condition not at all favorable if prolapse of the uterus should take place.

Vesico-Vaginal Fistula.—A fistulous opening from the bladder into the vagina.

Its common cause is the use of instruments during delivery, especially if the bladder has not been emptied. A full or distended bladder, with hurried labor, or with a bad presentation, or a crooked or deformed pelvis, may also give rise to it; and various other like conditions. It is often caused by ladies attempting to commit abortion on themselves by knitting-needles, whalebones. The dribbling of the urine through the orifice, night and day, gives rise to irritation, rawness of the vagina, and renders the patient very miserable, and an object of great distress.

It should be treated by getting her into as good health as possible, and then stitching it up; placing her upon her arms and knees, head down, parts well exposed by two crow-bill speculums, a catheter in the bladder. The edges of the fistula should be well pared, and then stitched up with lead-wire sutures; patient put to bed, and a catheter kept constantly in the bladder. All cases are successful.

Recto-Vaginal Fistula.—This may originate from a laceration of the perinæum, which extends back through the sphincter muscle of the rectum, which has been stitched up, but left an opening between the vagina and rectum; or it may have arisen from chancre in the vagina perforating through, or from stricture of the lower bowel, foreign bodies; from the introduction of knitting-needles, whalebones, to induce miscarriage; and like conditions.

It is easily recognized by the passage of gas, liquid, or solid fæces into the vagina. If very small, and in doubt, empty the bowels from above with castor oil; after it has operated, put patient on her back, knees drawn up, and a crow-bill speculum into the front part of the vagina; have a good light, and the index finger into the bowel, and examine it all over for an orifice. They are seldom high up, and by bulging the rectum with the finger, can be easily seen. If very small, so that a pea would penetrate through, it can be closed up without an operation if carefully managed. Every second or third day for five or six weeks it can be touched with nitric acid; that is, the edges of the fistula and a little beyond; after it is raw, it will begin and throw out granulations that will effectually block up the orifice. It takes time and care, and while it is going on, the patient must keep bowels very soluble and free from gas, by eating a proper diet. If it fails, or if the opening is large, it should be stitched up. Patient's bowels having been well cleansed out, placed under chloroform on her back, a crow-bill speculum should be inserted, and the part exposed to a good light; its edges should be freely pared, so as to have a good raw surface. If the sore is round, like a three-cent silver piece, it has to be lengthened slightly, to prevent puckering when the stitches are introduced; then sewed up with lead sutures; and the sphincter muscle on both sides of the coccyx must be divided, so that the patient can have no control of the bowels, that gas and solid matter may pass without disturbing the fistula; bowels locked up for ten days with opium; and kept perfectly quiet in bed for two weeks. If the patient is strong and vigorous, all may go well; the cut sphincter may unite; if it does not, the patient is a miserable object all her future life, not being able to hold or have control over her bowels. The original fistula, however, unites perfectly, unless there has been some bungling in the paring of the edges or application of the stitches.

To obviate the cutting of the sphincter muscle of the rectum, tubes have been tried, with partial success.

In all cases the best of nourishment should be given, so that a high standard of health be maintained.

Puerperal Mania, or Madness, is generally the result of a tedious labor, with the head embedded in the cavity of the pelvis,

pressing heavily upon the sacral nerves. The easing up of the head often relieves the difficulty. If not, delivery should be hastened, and then the case treated with anodynes, cups to the nape of neck, and enemata of lobelia and hyoscyamus. Bromide of potass and chloral hydrate should be freely administered. If she be altogether unmanageable, hypodermic injections of sulphate of morphia, with inhalation of chloroform at intervals of every two or three hours; bowels freely opened from above. The pressure of the head on the sacral plexus, even for a short time, the irritation is transmitted to the brain, a temporal form of mania is induced, which passes off; even that must be seen to. The condition is often much aggravated by worry, exhaustion, want, hæmorrhage, or debility—(see *Puerperal Mania*).

Puerperal Convulsions.—These are of different kinds, the original cause in them all being an irritation transmitted to the nerve centres. For treatment, it is a good plan to divide them into two classes—those in which there is anæmia of the brain, and those in which congestion predominates.

In both forms, turn, and deliver with all speed, if the mouth of the womb is dilatable.

If due to anæmia, hypodermic injections of morphia; lobelia enemata, and very nourishing drinks; or use inhalations of chloroform or chloral hydrate, with the hypodermic injections.

If due to congestion, enemata of lobelia, active purgation, hyoscyamus, bromide of potassa; heat to feet, stimulants to nape of neck, cups; all failing, administer either by mouth or rectum the antispasmodic mixture, which is a safe and always efficacious remedy. A division of the class thus enables you to meet them with great promptness.

Puerperal Peritonitis.—This rarely occurs without inflammation of the uterus first, then its peritoneal covering, and latterly, the entire membrane, closing with gastritis and death. The predisposing cause in all those cases is depression of the sympathetic system. The exciting cause, some injury to the uterus, or absorption of the after-birth, or lochia (see *Peritonitis* for treatment).

Milk Fever.—Usually comes on by rigors, pains in breasts, thirst, fever, soreness of abdomen, often slight delirium, arrest of secretions of milk, and lochia—(see *Ephemeral Fever*).

Milliary Fever.—We sometimes have the same form of fever with a milliary rash, which runs along for over a week—(same as for *Ephemeral Fever*).

Rupture of the Uterus.—This is very apt to take place if there is any obstruction, hardened fæces, an exostosis of the promontory of the sacrum, deformed pelvis, a bad presentation, turning during a pain, or the use of ergot during the first stage, and such like causes. Some think fatty degeneration of

the muscular fibres of the uterus has much to do with it, and thinning of its walls. It is easily recognized by the sudden cessation of pain, fainting, pallor, death-like coldness, and, on placing the hand over the abdomen, the child can be detected in the cavity of the abdomen out of the uterus.

If such an event should take place, the abdomen should be slit up, its cavity exposed, the child, after-birth, blood, clots, and water carefully sponged out, the cavity of the uterus cleansed, the whole stitched up and bandaged. An effort should be made to rouse up the patient by the administering diffusible stimulants; and if she rallies, treat like *Metro-Peritonitis*.

Aching Kidney.—This is very common in women after abortion from a lift or strain. One or both kidneys may be the seat of the ache. The pain is heavy, wearying, deep in the side over the region of the kidney, or in the kidney itself. The pain in some cases is boring like a nail. There is often associated with this pain a corresponding ache in the limb of the affected side; it is also frequently accompanied with irritable bladder. It is most common about the monthly periods, but has nothing to do with painful menstruation, but is more likely to take place after delivery or abortion. The left kidney is more frequently the seat of ache than the right; in very rare cases can either a tenderness or fulness be detected. The case is essentially one of debility, and requires rest and tonics, as uva ursi and tincture of iron, capsicum, or other stimulating applications. Albuminuria may exist in the urine, with aching kidney, and if it does it is likely to give rise to the death of the foetus and abortion.

Coccyodynia; or, Neuralgia of the Coccyx.—Pain, tenderness about coccyx; often sharp, tearing, lancinating; is a most unpleasant form of neuralgia. Most common in women, on account of their great development of coccyx, and above all, in women of high civilization, who have as an index of that condition a sacrum at an angle well verging on to 45°, and a coccyx most perfect. In women of low civilization the sacrum is nearly straight, and the coccyx almost as rudimentary as it is in man.

Causes.—Hurried labor, or insufficient support to the perineum, whereby the nerves of the coccyx receive a shock; blows, falls, fractures, and horseback exercise, etc,

Symptoms.—Pain in sitting down or in rising, or in walking, or in defecating. Pain is even more than neuralgic, more than sharp and lancinating; there is a general soreness. In many cases patient can only sit on one hip. Any movement or pressure on the surrounding parts give rise to pain. It is aggravated by menstruation, or sexual intercourse. It may be

reflex, as in chronic inflammation of uterus or ovaries. It is very chronic in its nature.

Treatment.—Remove all sources of irritation about uterus, ovaries, rectum. Place patient upon a general alterative and tonic course of treatment, with the best of food. Keep bowels open with cascara; suppositories of belladonna and opium at bedtime, or hypodermic injections.

To raise the standard of vitality in the nerves of the coccyx, warm hip-baths, quinine, iron, pulsatilla, glycerite of kephalline, and other nervines, such as musk, valerian.

Painful Sitting.—In coccydynia, as a result of fracture of the hinge-joint, after ossification, in having a child after thirty-five years of age, there is apt to be a laceration of the nerves, and neuralgia established, which gives rise to painful sitting.

This is also present in deep-seated inflammation of the genital organs, especially in the uterus and ovaries, so very slight, however, that the patient does not experience uneasiness, only in the sitting posture.

Relaxation of the great joints of the pelvis towards the end of pregnancy is very natural; they become loose and juicy, and a considerable increase of motion is observed in them. If the labor is long, the presentation not a good one, or the head of the child large, or instrumental delivery, made with force or violence, there may be a low grade of irritation set up in them. So that there is a morbid loosening, which not only gives rise to pain in sitting, but hopeless lameness. Rest, general alterative, and tonic treatment will, in time, effect a cure.

Other Morbid States Co-existent with Childbirth.—With regard to the mental relation and its disorders, the rule is, that women, having children for the first time, over twenty-five, thirty, thirty-five years of age, are more liable to attacks of insanity than when younger. Cases of insanity arising during pregnancy are smaller than after delivery. Melancholia is the most common form occurring during, or associated with childbirth. We are utterly opposed to the practice of those who advise pregnancy in cases of insane women, when ordinary remedies fail to do good.

Pregnancy is not incompatible with carcinoma, syphilis, epidemic and infectious diseases, and forms a grave complication. As a rule, conception temporarily arrests phthisis pulmonalis, but never cures that condition. The marriage of persons so affected is contrary to the general welfare of a people.

In, during, and for six weeks subsequent to childbirth, the most rigid antiseptic precautions should be observed. The *lochial discharge* is a mass of disease-germs (bacteria), and its septicæmic properties should be promptly destroyed. Body bedlinen immersed in sulphurous acid water.

THE CHILD—ITS DISEASES.

THE CHILD.

One of the greatest wants of the age is health—"a sound mind in a sound body." Without it our national future—the future of families, of races, becomes more a matter of chance than a certainty. Physical degeneracy has blotted out many names from the face of the earth that ought to have been perpetuated to bless and take part in civilization and progress. Many parents bring into the world feeble children, because the laws of life and growth were not understood. Many more have consigned their loved ones to an early grave, or had them afflicted with disease, feebleness, deformity, through a want of a knowledge of the natural laws of life. It is a true maxim, that a large and healthy population is the life and strength of a nation, as well as the source of its success in sciences, arts, agriculture, commerce; so that it is a point of momentous importance to secure to the child a perfect state of health. It is true that pure air, cleanliness, suitable clothing, plain, natural food, will do much in preventing disease and prolonging life. Marriage should be prohibited among persons of like temperaments, or diseased, as they produce a diseased offspring. Neither should there be any incompatibility of ages, of blood affinity, or disposition. In order to do her duty to herself, to her country, to her offspring, a pregnant mother should sustain her health in its highest perfection. This she will accomplish by attention to diet, clothing, cleanliness, exercise, and moral discipline.

Her diet should be simple, light, nutritious, with abundance of brain, bone, and flesh-forming elements, adapted to the requirements of the individual and the condition of the digestive organs. The clothing should be warm, comfortable; all tight lacing, corsets, etc., should be avoided. Keeping the skin in the best of order, by daily tepid sponging, is very conducive to good health during gestation. Gentle, moderate exercise is to be recommended, and all violent movements avoided. She should live in well-ventilated rooms, so as to breathe pure air at all times. There should be a perfect state of mental and bodily equilibrium on the part of the mother on all occasions; a well-balanced state of all her emotions, desires, affections, passions; her mind calm, cheerful; there should be no strain

either on the intellectual or physical, especially on the former. She should entertain a high sense of her social duties, of her eminent status in nature as the mother of our race, and have implicit trust in Him whose name is honored in his marvellous works. The mother is all in all; her mental condition stamps the character, the calibre of the future man, the future mental condition, sex, and capacity of an immortal being; so that every precaution should be taken to look well to the mother.

At the moment of impregnation, both parents, to a certain extent, transmit their qualities to the offspring; and either parent may transmit, to a greater or less degree, their constitutional peculiarities, thus occasioning the greater or less resemblance to one or other parent. But from the moment of conception until birth, and even during lactation, the influences of the mother are constant. She is specially present; to her we owe all, even the determination of the sex. The natural tendency of a healthy mother is to breed a great excess of male births. This she can only do under certain conditions, to wit: saving her mental forces for perfect production. One would naturally think that by education and improvement of mothers in the sciences and arts, that we would improve the stock, and further increase male births, which is true, if the mother does not exercise, or exhaust, or overwork her intellectual powers during the breeding period of life. If a woman, before and during the child-bearing period of married life, becomes an astronomer, teacher, preacher, physician, attorney, she exhausts her manhood, and cannot bear male children at all, or if she is capable of giving birth to boys, they will have small heads, weak brains, feeble or meagre intellectual capacity; in other words, they are deteriorated and effeminate. So that if married women crowd the avenues of scientific life, before and during the child-bearing period, we run the risk of becoming a nation of girls.

Anything that affects the mother injuriously or depressingly, to the same extent damages the child. Let the mother partake of gross food, and there is a strong probability that the child will be tubercular; if she is of sedentary habits, it will be weak and flabby; if she has been dosed with drugs, they will impair the constitution of the child. And so, with mental influences—if she has contemplated foeticide, the future child will have suicidal mania; if she reads trashy novels, they will react on the offspring in some vice; if she is passionate, has an unhappy home, or bad husband, each one, or all, will give rise to some deterioration in the child. So that if we want healthy, buoyant children, free from all disease or immoral taint, we must have happy, comfortable mothers.

To have healthy children, parents should be free from disease, either inherited or acquired; should exercise no deleterious

trade, nor should they use alcohol or tobacco—both productive of imbecility and nervous disease in the child—and should have healthy organizations, and conform to all the requirements of hygiene.

A most important condition to our having healthy children, is to give them abundance of pure air to breathe. Respiration is the first act of independent life; air is a vital necessity. Shut a child up in a close room, or in a crowded city, every breath he takes changes the quality of the atmosphere; it loses oxygen, becomes loaded with carbonic acid gas; besides, there are the emanations from skin and lungs, which are poisonous. Pure air is essential to life, to the blood, and to all the tissues.

Next to air comes exercise; the activity of every organ and function. There is not an organ, muscle, faculty, gland, but what was made for use, for movement, exercise. Exercise is necessary to development; without it, anæmia and disease. Good health requires, nay, demands, the regular performance of all the organic and animal functions, secretions, excretions, and all muscular, nervous, intellectual, moral, and passional activities. It *demands* for the entire body, bathing once or twice a day; it *demands* a temperature neither too warm nor too cold, and easy clothing, so as not to impede motion, aeration, and perspiration. As destruction is rapid, and renewal very active, everything about a child should be scrupulously clean.

Rest and sleep are important factors in growth. Sleep, during which the brain picks up its pabulum from the blood; the brain must rest for fresh supplies. The child, the microcosm of Deity, with its dawning intelligence, sleeps nearly all the time. Nothing so withers and blasts incipient vitality as want of sleep. In childhood, ten to twelve hours in the twenty-four should be devoted to sleep; in maturity, eight hours is sufficient; and in old age, we do with less.

Management of the Infant at Birth.—The most striking picture of utter helplessness that can be imagined is that of an infant at birth; for if assistance be not speedily afforded it will perish. The first thing to be attended to is the umbilical cord, which should be tied with saddler's silk, about three-fourths or one inch from the abdomen; then another ligature about an inch further on, and the cord divided between the two with clean-cutting scissors. Any mucus should be removed from the mouth, or ears, and it should be examined to see that it is a perfect child. After the function of respiration is established, the infant should be wrapped up in a blanket and kept very warm, protected from cold, and the nurse, or other attendant, should bathe it at the earliest opportunity, after the mother has been duly cared for. The first bathing of the infant is of much importance, and it should be performed with the greatest

care and precision. All children, to a greater or less extent, are covered, either partially or wholly, with a thin or thick sebaceous secretion, which will not unite with soap, but readily unites with fat or oil. So, after the nurse has been provided with a low stool, a basin of tepid water, castile soap, and some olive oil, or lard deprived of its salt, she sits down and first freely anoints the scalp of the little stranger, rubbing it in gently, efficiently, causing it to unite with the sebaceous secretion, and then takes the soap and washes off; then she goes over the face, ears, and in the same manner, being most careful that not a particle of this matter enters the eye, ear, vagina, axillæ, as it causes inflammation; and being very careful that not a particle of it remains about an ear-lobe, angle of nose, a fold or crevice of the skin. Then she manipulates each arm in the same manner, washing the arms, and watching the armpits and fingers, then the limbs, and looking after the corrugations about anus, folds of vagina, groin. The utmost care should be exercised, and if it has been heavily covered, it might not hurt to bathe it in the same manner again in a few hours, lest the smallest particle or patch may have escaped observation. The perfect removal of this sebaceous secretion is all-important, and should receive the most careful attention and scrutiny, so as to prevent ophthalmia and other inflammations.

After the child is thus not only bathed but thoroughly cleansed and well dried, a double piece of fine old linen, four inches square, with a hole in the centre to permit the passage of the cord, slightly scorched, should be applied over the navel, bringing the cord through the orifice, and the linen laid flat on the belly. Then another piece of linen the same size, with a hole in centre, should be applied, into which the end of the cord should be wrapped up and turned over to the right side; and over and above all, a roller or bandage of finest flannel, reaching from the breasts to the groin, should be evenly and neatly pinned; and then the general clothing of the child, which should be easy and warm—flannel or silk. If the mother has been properly cared for, and the labor not too exhausting, she will have milk; and it is the best plan to put the child to the breast pretty soon, as the mother's milk is the true nourishment for the infant, that which nature has provided, a perfect combination for the due elaboration of every tissue in the body. Still, there are cases in which this cannot be done, and the child must be nourished with a little milk and water, or sugar and water. We are, however, most partial to mother's milk, as it cleanses out the bowels of the meconium, gives the nipple a better shape, facilitates a better flow of milk, induces contractions of the uterus by its reflex action, and diminishes all risk of secondary hæmorrhage.

The child, for the first fifteen months, should be bathed morning and night—a thorough ablution—followed by gentle friction, and clean, soft clothing, to maintain an active condition of the skin. Tepid bathing for infants is always to be preferred. Very great cleanliness should be observed, diapers changed the moment they are damp, soiled, and moistened parts sponged off.

About the fourth month a child should have sufficient exercise in the open air, be occasionally placed in a sitting posture, and be allowed to roll round and kick at its pleasure. All these movements not only afford amusement, but act beneficially, by calling the different muscles of the body into action, and so increase their strength. A child should be exercised during the day, so that it may enjoy undisturbed repose at night.

The child should be weaned between twelve and fifteen months, provided it has teeth, and the season of the year warrants. No child should be weaned at the approach of summer, not unless the mother be pregnant, then it should not be kept an hour at the breast, irrespective of season or age. In weaning, it should be gradual, less and less daily, gradually substituting milk-food and ordinary solid nourishment. In all cases avoid starchy food, as rice, arrowroot, corn-starch, farinas, as they contain neither brain nor bone—not food for a Caucasian child; besides, the child has no saliva to digest starch. In order to be brief, we shall next direct attention to various peculiarities of the infant, and then to special diseases.

Peculiarities of the Infant.—Infancy may be said to extend from birth to the second year, or completion of dentition; and childhood to the age of puberty. The general appearance of a new-born infant is as follows: It usually measures twenty inches, more or less, and weighs about six or seven pounds, more or less. The skin is very vascular, sensitive, and delicate; of a deep red color. All the prominent parts of the body are well protected by fat and cellular tissue; the tendons and ligaments are imperfect; the muscles soft and gelatinous; the bones are small, chiefly cartilaginous, deficient in earthy matter; the lower extremities are less developed than the upper; the pelvis is small and looks contracted; the thorax small, flattened at the sides, prominent in front; the head and abdomen large.

The digestive organs are perfectly adapted for producing rapid changes in the food introduced into them; indeed, they afford room for a continual supply of the materials for nourishment and growth. The mouth is beautifully adapted for extracting the food prepared by the mother, and conveying it to the pharynx. The stomach is small and long, which shows that it is not suited for receiving much food at a time, or for retaining it long. The intestines are smaller and shorter than in the adult; their peristaltic action is rapid, so that all excre-

mentitious matters are quickly got rid of, the infant having an evacuation every four or five hours. The mucous membrane of the whole alimentary tract is thick, soft, villous, very vascular, and sensitive, and easily irritated by improper food; the salivary glands, the pancreas, the lacteal vessels, the mesenteric glands, are largely developed; the kidneys are large, the suprarenal capsules of considerable size; the spleen is small, liver very large, occupying one-third of the abdominal cavity, but becomes smaller by changes that take place in its circulation. The respiratory organs undergo a great change; the lungs, on being permeated with air, increase in size, become light, vesicular in structure, and of a deep rose red; the respirations are nearly double those of an adult. The action of the heart is quick, varying from 120 to 130 beats in a minute. In looking at the nervous system, we find the brain large, soft, imperfect in structure, and weighing about ten ounces; the convolutions are imperfectly marked; intelligence is in direct proportion to their extent, while the gray portion scarcely differs from the white, in color. The meninges are more vascular than in the adult. The structure of the spinal cord and nerves is more perfect than that of the brain; those parts being devoted to functions of sensation and voluntary motion. The organs of the external senses are all present at birth, and the nerves distributed to them are large.

Peculiarities of Diseases in Children.—During childhood little boys are very delicate, and susceptible to disease, whereas little girls are tough and wiry, and resist morbid action. After puberty, the young man is the vigorous, and the young lady the delicate, or tender, thus reversing the conditions. In childhood, in both sexes, there is a predisposition to disease on account of inherent weakness of organization, and the ease with which impressions are made, and disease at that period of life is very apt to be insidious, and run a very rapid course into some organic change. The activity of the vital force, the quick metamorphosis of tissue, predisposes to inflammatory disorders, and the great susceptibility of the nervous system to impressions causes any affection to be keenly felt by the whole system. Hence, the slightest disease, or indisposition in a child should never be regarded with indifference. It is also true that the same activity of the vascular and nervous system imparts an energetic, reparative power in the child, and essentially aids recovery from some severe affections which would be fatal in advanced life.

The skin and the mucous membrane of the respiratory and digestive organs, are the principal points upon which morbid impressions exhibit themselves, although they originate in the stomach, or from outside influences. The mucous membrane

of the larynx, trachea, bronchial tubes, is liable to inflammation of various grades, mostly of an acute character. The gastrointestinal mucous membrane is another source of disease in early life, and owing to irritation of these parts, so abundantly supplied with the sympathetic nerve, and the increased sensibility of the reflex centres in modern children, give rise to innumerable brain affections. Hence, the frequency of fits, convulsions, and cerebral disease. The early growth of the lymph canals, or lymphatics, render them obnoxious to morbid action. Diseases of the urinary organs are not frequent nor severe.

The diseases of children present many interesting and remarkable features, the peculiarities decreasing as age advances. All affections of children, even the process of dentition, are attended with fever of a remittent type, having exacerbations towards evening or during the night.

In all cases of disease in the infant the causes are the same as at other periods of life, though they react upon the child with greater severity than the adult. Errors in diet, impure air, inattention to the laws of health, intense cold, heat, damp, filth, meagre or improper food, insufficient clothing, disease-germs, poison; reflex states, as dentition, worms, accidents, act energetically upon its feeble constitution. Again, many disorders that exist in early life may not exist at birth: Thus, some are unfortunately born with the germs of syphilis, tubercle, in their blood. The chief causes of death among our children are cholera-infantum; disease of the brain, superinduced by indigestion; acidity, worms, teething, bad food, and the like.

Diagnosis of Infantile Diseases.—A little good sense is all that is necessary to form a correct diagnosis of the diseases of the child. The chief sources from which our information is derived are the countenance, the gestures, attitude, the sleep, the cry, the mouth and breath, the respiration, circulation, etc.

Countenance.—The human face divine is the most interesting and intelligible page in the book of nature. In its calm and smile, we read health, ease, happiness of mind and body; in pain and suffering we discover disease.

In general uneasiness, excitement, and fever, the whole expression of the countenance is altered, a flushed and wrinkled condition alternately being remarkable.

In affections of the brain and nervous system, the expression of the upper portion of the face, as the forehead, brows, and eyes, is especially changed; the skin white, the forehead contracted and heavy; the brows are knit; the eyes wild and vacant, or fixed and staring, partially open; rolling of head; squinting; dropping of eyelids.

Morbid conditions of the organs of respiration and circulation

affect the features of the middle of the face: the nostrils, in pneumonia, are dilated; the tip of cheeks red; sharp, dark circle round the mouth. In cardiac irritation, features are contracted.

In diseases of the abdomen, a peculiar expression is given to the face: cheeks sallow, sunken; the mouth retracted or drawn; the lips colorless. In irritation of the bowels from worms, the nose and upper lip are tumid, a dark ring below the eyes and round the mouth, and the white of the eye has a pearl-like look. In the exhaustion from diarrhœa, the face is alternately flushed and pale, hot and cold; in extreme cases, pallid, cold, glistening; the eyelids half closed. In jaundice, the countenance is yellow. In measles, the running from eyes and nose, redness of the eye, swelling of eyelids, never can be mistaken. The features are emaciated, and present an appearance of decrepitude, in tabes mesenterica. The peculiar feverish look, sharp features, sunken eyes, pallor, of cerebro-spinal irritation, never can be mistaken. Pain in the head causes the brows to contract; in the belly, the upper lip is elevated; in the chest, sharpness of nostrils. Before convulsions come on, the face becomes convulsive, the upper lip is drawn, there is squinting. Suffusion of the face denotes fever; flushes of heat and coldness denote exhaustion.

Gestures and Attitude.—The beginning of disease in a child is made apparent by inattention to surrounding objects, by their listlessness, and dislike to movement. They then become restless, languid. Inflammatory pain may make a child still. In abdominal inflammation the child lies quiet; the knees bent, drawn up; twisting about; uttering loud cries on the sudden accession of pain. Acute spasmodic pain induces immediate contraction of all the muscles, and the infant starts in terror. In convulsions, the head is thrown back, an arm becomes rigid, or a leg is drawn upwards, and the child cries violently from pain or fear; the breathing is spasmodically affected; the thumbs and fingers are drawn into the palms of the hands; the toes are firmly flexed downwards. In irritation of the brain, the little hand is frequently raised to the head, attempts made to tear off its cap, and perform other movements with the hands, while the head is rolled from side to side on its pillow. In disorders of the mouth, as difficult teething, the child presses its fingers into the mouth, or seizes and presses the nipple roughly and greedily, or rubs the gums with anything it can get hold of. In croup and other diseases producing difficulty of breathing, it pulls or grasps at the larynx, and tries to compress it laterally, and by its cries indicates the seat of suffering, which is relieved by the sitting posture. During

dentition, throwing back the head, grinding of the jaws, or irritation of digestive tract, indicates convulsions.

The Sleep.—The sleep of a healthy child is deep, tranquil, prolonged; the countenance is calm and happy; the breathing slow and easy; its limbs relaxed; on awakening, it is lively, and seeks the breast. In disease, the rest is disturbed, broken; the respiration is loud, labored; the brow contracted, or the mouth drawn; there is grinding of the teeth, or gums; sudden startings; the child is fretful, irritable, peevish. Any irritation anywhere, but especially in the brain or bowels, lessens the ability to rest. Rigid extension of the limbs, with a turning-in of the great toes and thumbs, is indicative of convulsive movements. In jaundice, there may be deep sleep or coma.

The Cry.—The first indication that a new-born infant gives of life is to cry, and the more loudly and lustily it does so, the better, as it thereby inflates the lungs more perfectly, and demonstrates the fact that the vital organs are well and vigorously formed, and the child in good health. But after being bathed, clothed, and warmed, and otherwise seen to, the well-cared for infant cries but little; the act of crying being reserved to express pain, distress, hunger. Pain is productive of crying. In affections of the lungs, the cry is more of a groan; in croup, hoarse, muffled, crowing; in cerebral disease, screams, with great irritability at intervals; in diseases of the abdomen, the cry is prolonged, low, moaning. The sympathetic nerve and lachrymal gland being rudimentary until three or four months; the little sufferer does not shed tears in crying until after that period. After fourth months, if a child shed tears in the act of crying, it is a most favorable sign; but if the eyes are dry, sunk in the orbit, great danger to life exists.

The Mouth and Breath.—In health, the mouth is moist and pale, the tongue smooth, and partially covered with a layer of whitish mucus; the gums red, the breath sweet, free from smell or odor, only that of the mother's milk. This is altered by very slight causes; the mouth may become hot, dry, red; the tongue coated, and the mouth sour, acrid. This is the case in fevers, acute affections of the chest and abdomen, and in retarded, difficult dentition. In the eruptive fevers, tongue often swells, or its papillæ projects. In scarlet fever, with its strawberry papillæ, it sometimes presents a swollen, hot condition. In sore mouth, or aphthæ, due to bad milk, indigestion, teething, overcrowding, the breath is fetid, tongue excoriated, and there may be ulceration on various parts. See *Aphthæ*.

The Skin and Temperature.—In a healthy skin of an infant we should find it firm, elastic, smooth, of a rosy flesh-color, neither hot nor pale, but moist and cool. A hot skin is present in all febrile diseases; a cold, moist skin in feebleness

and prostration. Great redness indicates inflammation, or the eruptive fevers; a pale, doughy skin warns us against tubercule; intense blueness, to cyanosis, a mixture of the arterial and venous blood, or some interference with the oxygenation of the blood; a yellow skin, to some affection of the liver; a dirty, sallow hue, to diarrhœa. Rigors are not common in young children, even suffering from malarial fever, the usual symptoms being a paleness of the face, a discoloration of the lips, a bluish tint beneath the nails.

Respiration—An infant breathes instinctively, without method, but with regularity. All diseases of the air-passages are attended with noisy, rattling respiration and cough, which is hoarse and spasmodic in inflammation of the glottis; ringing in laryngitis; crowing in croup. In catarrh, bronchitis, pleurisy, and pneumonia, the breathing is merely hurried, the cough hacking and dry, and the expectoration, as it comes up, is swallowed by the child. As the inflammation increases, the rapidity of the breathing becomes great, so that in lung congestion it is often panting; at the same time there is rapid dilation and contraction of the nostrils. In pleurisy, the respiration is restrained; in peritonitis, the inspirations are short, jerking, difficult.

The Circulation.—The heart's action is more variable in infancy than any other period, and impressions of every kind quicken the pulsations. Pulse, in health, ranging about 130.

Discharges by Vomiting and Stool.—The first stools after birth are of a black, or dark-green color, called the meconium. Subsequently they become brown, or of a yellow hue, of a curdy consistence. The bowels move frequently in health—about every four hours. Heated milk, or anything that disturbs the digestive organs, may cause vomiting and diarrhœa, and reflexly act on the brain. A great many diseases of childhood are ushered in by vomiting, or diarrhœa, as cholera infantum, whooping cough; and the expectoration swallowed in diseases of the chest is often vomited, or causes diarrhœa. Frothy, acid, stools, with undigested milk, indicate disorder of the stomach and pancreas; green, or chop spinach stools, irritation of liver and brain; slimy stools, common in difficult dentition, or when worms are present in bowels; thin, fetid, dark-brown stools indicate chronic diarrhœa. Constipation is rare among children when they are fed on milk diet, until teeth are present for mastication.

The Urine.—Scanty and high-colored in all fevers and inflammations; of an intense uriniferous odor in difficult dentition and marasmus; scanty, almost suppressed, in disease of the brain; complete suppression may follow a fall, shock, jar; in disordered liver, stains diaper a deep orange color.

DISEASES OF INFANTS.

It will be impossible to notice the disease, accidents, deformities, nutrition, dentition, of infants, in anything like order, so we shall isolate them and enumerate singly.

Inflammation of the Umbilicus.—Many ignorant medical attendants, self-conceited nurses, and meddling old women, insist upon various applications to the navel, especially rancid and trichinous lard, which softens, irritates, and causes ulceration at this point. The scorched linen rag, which we have recommended, is the best application: it is absorbent and antiseptic, and always procurable. The period of time that elapses before the cord separates, is about the fourth day, and in cold weather, perhaps five or six. When it has not been tampered with, a slight oozing of serum takes place, and the part heals; but owing to some condition of irritation, that instead of healing, it may become inflamed and ulcerated; suppuration takes place, and very serious hæmorrhage may occur. When this takes place resort at once to antiseptic washes, for in the ulcer the *oidium albicans* are abundant, and must be immediately destroyed. So bathe it with the borax or permanganate of potass lotion weakened down to suit age, and then dress with vaseline or ozone ointment.

Swelling, or Milk in the Breasts.—The breasts of the infant often swell after birth, and become engorged with serum and milk. The best plan is to open the bowels freely with oil; give a little sweet spirits of nitre, and apply over the breasts a lotion of muriate of ammonia, and if it does not disappear quickly, belladonna in tincture form, or put on the iodide of potass, muriate of ammonia, and belladonna ointment. If still stubborn, iodide of potass, in grain doses, internally, thrice daily.

Retention of the Meconium.—The black, or dark-green, viscid matter known by the name of meconium, is sometimes retained in the bowels after birth, instead of being discharged freely the first day or so. Its evacuation is promoted by the first milk secreted by the mother, which is of a slightly aperient nature.

As a rule, this is sufficient to bring away the meconium, but if it does not then it should be aided by medicine; a little castor-oil might be tried; that not proving satisfactory, a few drops of fluid extract of *leptandra* in water, in which one or two grains of bicarbonate of potassa has been dissolved.

The Yellow Gum.—If the meconium is not discharged promptly, its presence seems to give rise to irritation and obstruction of the biliary ducts, forcing the bile back into the liver; the meconium becomes impacted in the intestines, and a condition of jaundice supervenes; or the jaundice may be due to

the disturbance of the hepatic circulation, on the transfer of its chief blood-supply from the umbilical vein; or, owing to some condition of congestion, there may be difficulty in the bile finding its way into the duodenum.

This causes languor, indolence, yellow skin, bilious urine, a tendency to deep sleep, which keeps child from nursing, and may prove fatal. In some cases it assumes the condition of true jaundice.

Treatment.—Cleanse out the bowels with oil; follow with a solution of phosphate of soda, one grain every two hours. A few drops of the fluid extract of leptandra, in the neutralizing mixture, should be given morning and night. If liver does not act very promptly, better to put one grain of calomel on the tongue, follow with the breast, and in an hour with a teaspoonful of oil. This may be repeated and followed with bicarbonate of potassa in a little water, the idea being to rouse up the liver, free the gall-duct from all viscid secretion.

Asphyxia, or Still-Born.—The apparent or real cessation of life in a new-born infant may be due to a variety of causes, such as inherent weakness of the vital powers; peculiar conformations; collections of glairy matter in the bronchi and air-vesicles of the lung; the introduction of a quantity of amnii into the trachea, and congestion of the lungs, arising either from the neck of the child having been tightly encircled by the os uteri, or vulva, or navel string; or from its being long detained in the passage, from pressure of the cord in breech presentation, or where the cord is prolapsed, or where the mother has been dosed with ergot. From the exhibition of this latter during labor, we have asphyxia, or still-born of a peculiar kind: the blood is coagulated in brain, heart; the child bloodless, and rarely manifests a sign of life; its blood dried up, mummified; and no method of reanimation can restore it to life. When unusual weakness of vital power seems to be the cause, and there are active pulsations in the cord, lay the child on right side, keep it warm, rub it gently; but do not slap it on either the back or side, and do not ligate the cord as long as pulsations are good; artificial respiration should be tried; but blowing in the nose, and trying to inflate the lungs are very unsatisfactory, as the air is frequently blown down into the stomach as well as the lungs. If pulsations have ceased, ligate cord at once, and try the usual means for suspended animation. Then cleanse thoroughly; wrap in flannel; rub gently; use tincture of capsicum down the spine; sprinkle alternately hot and cold water on the chest, so as to get it to sigh, and thereby inflate the lungs; blow on face. Try artificial respiration, warm bath; and be careful while pursuing these or all those means, that the child does not lose its heat;

keep it in flannel, and rub with tincture of capsicum and whiskey. If there is an electro-galvanic machine about, set it at work, applying the positive pole to spine, negative over stomach and diaphragm. This is often effectual. If respiration can be established, give a few drops of brandy in sweetened water, and repeat at intervals.

When a portion of the liquor amnii gets into the trachea, and produces asphyxia, or the mouth of the infant is discovered to be filled with a glairy matter, rendering the respiration difficult, sonorous, rattling, we must wash out the mouth and throat; place child over on its belly on the nurse's lap, which will facilitate the discharge of the liquor. Having done that, we must endeavor to reanimate the child in the usual manner.

If a congestion of the lungs be the cause, or if you suspect the nurse or physician has been dosing the mother with forcing-powders (ergot), then it is a good plan to untie the cord, and let from a teaspoonful to a tablespoonful or more of blood escape; then follow with warm mustard-bath, friction to surface. Slapping the infant is always reprehensible, as its lungs, liver, spleen, kidneys, and other organs, are so soft that they are liable to lacerate. In all cases adhere to the rules laid down for *Suspended Animation*.

Medical men are often called upon to give evidence in cases of supposed infanticide; it seems proper to mention that much careful observation and experience is required to discriminate between a child that is still-born, and one that has lived only a short time after its birth. Various appearances, both internal and external, may be mistaken for marks of violence. Even the floating of the lungs in water, a test on which much reliance is placed, is found on many occasions to be fallacious; for they will float if a putrefactive process has commenced, as well as when filled with air by respiration. It may also happen that an unmarried woman, on arriving at the full period, and having concealed her condition, may be taken ill alone and be delivered of a live child; but that either from syncope ensuing speedily, or from a convulsion, or from loss of reason, or a distracted state of mind, or some other cause, that she may be so far overcome as to be rendered incapable of assisting herself or child, and it may have been suffocated by the bedclothes. In other instances it may happen that the child is born alive, still, from some injury in the birth, or inherent weakness, or some other obscure cause, it may cease to breathe without receiving any injury from the mother. No doubt cases of this nature are of daily occurrence, and they point out the impropriety of placing any reliance on the floating of the lungs in water as a test of infanticide.

The dictates of humanity and reason require a radical change

of this method of evidence, as it has been often injudiciously used.

Excoriations, Chafing, Ulcerations.—From a want of care, neglect of proper cleanliness, children are very liable to chafe, or excoriate, in the folds of the neck, behind the ears, in the groin, and around the arms. To prevent this, there should be a removal of all damp or soiled linen promptly, the parts dried and exposed to the air. It is a good plan to bathe all excoriated parts with warm milk and water twice or thrice daily, or an infusion of sage tea and borax, and afterwards dust with pulverized starch, or rub over with vaseline. If the excoriations are of considerable extent and depth, use a solution of borax for a wash, and apply the ozone ointment for a dressing; this will heal them rapidly. In obviating excoriations, it should be our aim to prevent the secretions of the body from mingling with them.

In tubercular children, about the time of teething, when the child suffers from malnutrition, bacteria are very abundant in alimentary canal, blood, and they find their way about the skin of the ears and other parts, which gives rise to sores, the secretions from which are highly contagious. In these cases, an effort must be made to correct the malassimilation, by sulphate of cinchona and elixir cinchona. The sores should be bathed with a decoction of poppies, and either kept dry by dusting on pulverized starch, or applying ozone ointment.

If the case is stubborn, push better food; pure air; and alteratives, as iodide of potass; and use stronger antiseptic washes locally.

Non-expansion of the Air-cells of the Lungs.—It often happens from a weakness, or from a long, tedious labor, or from severe compression of the head, or from the little one's blood being coagulated by ergot administered to the mother, that it is unable to inflate its lungs perfectly; that there is a non-expansion of the air-cells, and the infant looks as if about to die. It soon becomes jaundiced; cry consists of a mere whimper; inability to nurse; drowsiness, exhaustion, are great; surface cold and livid; chest but partially dilated by imperfect respiratory movements; the lung condensed, but the consolidation will give way as strength is gained; and good health may be attained, or death may occur from exhaustion and convulsions. To prevent this, bathe the child, wrap up in warm flannel in a room 80° F.; hot bath twice every twenty-four hours; massage gently with sweet olive oil, especially about the chest and abdomen; nourish every two hours with juice of raw beef, or milk and lime-water; open bowels with magnesia.

Cephalæmatoma.—If the labor has been long, tedious, or the head large and pelvis small, or the presentation a difficult

one, it is very apt to so compress, or stagnate, or rupture vessels on the scalp so as to cause the formation of a bloody tumor after birth between the bones of the skull and pericranium. Long-continued pressure is the cause.

Symptoms.—Tumor varies in size from a hen's egg to that of a large orange. It is generally formed on one of the parietal bones; on right more frequently than left, and occasionally on both. Swelling is soft, fluctuating, and circumscribed; its base often becomes encircled with a hard ring, caused by the coagulation of the plasma exudation.

Treatment.—Never incise, nor apply compression; administer a gentle purge, and apply a solution of muriate of ammonia, not very strong. If anxious regarding it, a solution of iodide of potass, five grains to the ounce, of lime-water, and apply

Convulsions of Infancy.—There is a very rare form of convulsions occasionally met with in infants, which is epileptic in its character, and leads to impairment of the intellectual faculties.

It consists in a peculiar, involuntary, rapid bowing forward of the head, and in some cases the whole body. The bowings are repeated in quick succession, one following the other, occurring every day, or less frequent; usually worse in the morning, or when awaking from sleep. After child grows old, regular epileptic attacks take their place; pure epilepsy, or convulsions, or paralysis, and wasting may follow. By attention to bowels, skin, and administration of alteratives, the symptoms will subside, and the health be completely restored.

Treatment same as for *Epilepsy* and *Convulsions*.

Nine-day Fits.—There is a peculiar form of tetanus, or lock-jaw, that occurs in infants about second week after birth, and is very fatal. It is supposed by some to be due to cutting the navel-string or cord with blunt scissors, or to the application of irritating agents about the navel.

Others imagine it to be due to cold, foul air, improper feeding, imperfect bathing, retention of the meconium, ergot to mother. Precautions ought to be taken in the dividing of the cord that it be done by clean-cutting scissors; that no irritants be applied to navel; that the child be properly seen to by proper bathing, pure air, cleansing out its bowels with oil.

As a rule, it is fatal.

Imperforate Anus.—A congenital defect, often overlooked at the bathing and dressing of the child. It signifies a closure of the rectum, and may occur in various degrees. The anal opening may be closed by a thin, fine skin, which soon becomes distended with meconium; or the bowel may terminate in a blind pouch at any point from the sigmoid flexure downwards,

and the anal aperture be altogether wanting; or the anus may be open for an inch or two, with an obstruction beyond; or the rectum may terminate in the bladder or urethra.

Treatment.—If the end of the intestine can be felt protruding when the child cries, make a free crucial incision into it without delay; if it cannot be felt, an incision of the same kind made, and the parts explored, and an effort made to reach the bowel, which, if reached, is to be pulled down and opened. Nature is very provident in those cases. Give her an opening, and she rapidly forms around the descending meconium a wall or tube, which becomes a rectum. The opening at anus should be large enough to admit the finger—always made crucial. It is recommended, if no bowel can be tapped per anus, to make an artificial opening, or anus, in left groin.

Hide-Bound; or, Sclerema.—A peculiar disease of newborn infants, consisting of an induration of the skin and subcutaneous tissue, with serous effusion, occurring at birth, or within ten days subsequently. It seems to depend on the latent elements of syphilis.

Symptoms.—The skin, at first, is dry, stiff, withered; then assumes a waxy, yellowish appearance, and gradually becomes distended and unyielding; so the babe is said to be skin-bound. It grows cold, prostrated, unhealthy, and often jaundiced. Indications of distress in the restless, whining cries; refuses the breast; feeble pulse and laborious respiration. Gastric, and intestinal disturbance sets in, and death is ushered in with prostration and asphyxia.

Treatment.—Use warm bath; inunction of oil; flannel; solution of raw beef, and one grain doses of iodide of potass; milk and lime-water; keep bowels open with neutralizing mixture, and see that kidneys act well. Death is almost inevitable.

Hiccoughs.—Some infants are greatly incommoded by hiccoughs. They usually arise from some acidity of the stomach, or from some nervous irritation.

If due to *acidity*, try a few drops of lime-water in milk; a grain of bicarbonate of potassa, in milk, or the neutralizing mixture.

If due to *nervous irritation*, try one drop of chloroform, in water, sweetened, or tincture of aconite, or belladonna; or a few drops of aromatic spirits of ammonia in water; or some aromatic tea, as catnip, anise seed, carraway. In some cases a few drops of vinegar proves very effectual. If persistent, and not relieved, then some stimulant to spine and over stomach, as soap liniment and lobelia.

Our Infantile Mortality.—Our country, noted for every practical improvement, every species of philanthropy, everything capable of ameliorating human toil and suffering, suffers

the greatest infantile mortality in the world. Much of this is due to solar heat, city life, insanitary conditions, special diseases, but the greatest causes are bad feeding and improper drugging. The practice of not nursing, or weaning early, is now becoming more common, as the struggle for existence becomes greater, so as to enable the mother to work. As a result, the babe is fed on starch, farina, corn-flour, boiled bread, sour, or swill milk; articles it cannot digest; so that it starves—takes marasmus; because it has lost the main factor of nutrition, mother's milk, it sickens, dwindles and dies. Parents cannot be too frequently informed of the unsuitability of farinaceous food to children. The practice of an American mother in this land of freedom and wealth, being compelled to work during pregnancy and nursing, drains away the life and vigor of both mother and child. It makes the mother prematurely old, and stunts the growth and destroys the vitality of the child. A mother's labor, a mother's worry and strain should be minimized by every possible means, and work avoided.

As for drugging babes, it is a great wrong, and the immediate and remote cause of much mortality. Think of the millions of bottles of soothing syrups that are annually consumed, all loaded with opium, which whittles down and mummifies our new growth. Introduce a better system of feeding: milk-food free from starch; abolish drugging, and we will save this element of national greatness that is now lost.

Infantile Syphilis.—Parents, either father or mother, affected with the syphilitic germ, are liable to transmit it to their offspring. In the case of a father affected, and the mother free from the disease, the healthy uterus of the mother is likely to repel the diseased fetus at four or seven months, and cause an abortion; but in some cases the mother may carry her pregnancy through, and the child may be born, apparently free from disease. But in a period of time, usually inside of six weeks after birth, the original pock of the father will appear on the skin of the child in the shape of blisters about ears, nose, face, body, arms and legs, forming a regular rash, copper-colored. Very soon there is a general shrinkage, or shrivelling of the skin, with general syphilitic ulceration of mouth and throat, and other parts. In other cases, the infant may be born with the withering effects of syphilis visible over its entire body; its hair may drop off, and general ulceration may occur.

In still another class of cases, there may be no visible appearance on skin, but the disease may exhibit itself in the bones in a separation of the growing extremities of the ends of the long bones, which leads to the separation of their epiphysis.

This affection of the growing bones seems to be painless, and even more amenable to treatment than the skin eruption.

Same treatment as for *Adult Syphilis*.

Physicians meeting those cases in every-day practice, see the imperative need of legislative enactment to prevent the marriage of parties afflicted with this malady, entailing disease and death upon their offspring. Syphilis is a *contagium vivum* just as much as small-pox, and some gigantic effort is necessary to prevent its wide-spread dissemination.

Teething.—Of all the occurrences to which children are liable, not one is attended with such grievous and distressing symptoms as difficult dentition. With regard to the time of their cutting their teeth, no fixed or exact period can be laid down; as in rare cases, some are born with teeth, others have them soon, others very late, and others extremely late.

As a general rule, dentition commences, in the large majority of children, between the fourth and eighth month, and the process continues until the seventeenth month, and often later. The two front teeth of the lower jaw are those that usually appear first, and shortly after these are observed two more come out in the upper jaw, exactly opposite the two former. These are succeeded by the four molars, then the canine, and, last of all, those of an infant's first teeth, the eye-teeth, make their appearance, making sixteen in all. This is the ordinary number of a child's first teeth, as they are called, but some infants cut four double teeth in each jaw instead of only two, making the number twenty.

In children who are healthy and strong, who have a good mother and abundance of milk—a mother who eats a wholesome diet, with a daily meal of oatmeal porridge and cream, corn-bread, and boiled fish, the process of dentition goes on with perfect regularity, and the teeth are cut early, and without a particle of trouble or pain; but in the unhealthy and weak infant, who has a mother reckless of her diet, the process of dentition is slow, tardy, uncertain, painful, and difficult. So that we meet with children cutting their teeth in a very irregular way; perhaps the teeth appearing in the upper jaw at intervals apart, or overlapping, and the same in the under jaw, and various other conditions, which are attendant on tardy, difficult, or painful dentition. The first two teeth gives a pretty good index of what is to follow, the succeeding ones generally making their way in a corresponding manner. This first set is called the milk-teeth, and are generally shed when the child becomes six or seven years old, according to their diet and health.

At six or seven years of age, when the shedding begins, it is followed, in a gradual manner, by a fresh set; and about the age of twenty-one they get one more in the corner of each jaw, which, from their appearance at that period of life, have been

named their wisdom-teeth. The following table exhibits a fair average of the eruption of the teeth :

Deciduous Teeth.

(The lower generally precede the upper by two or three months.)

Central incisors,		5 to 8 months.
Lateral “		7 to 10 “
1st molars,		12 to 16 “
Canines,		15 to 20 “
2d molars,		20 to 36 “

Permanent Teeth.

1st molars,		5 to 6 years.
Central incisors,		6 to 8 “
Lateral incisors,		7 to 9 “
1st bicuspid,		9 to 10 “
2d “		10 to 11 “
Canines,		11 to 12 “
2d molars,		12 to 14 “
3d “		17 to 21 “

Difficult Dentition.—Premature decay of the teeth is in a great measure due to the want of vegetable phosphates in the mother's blood ; to her neglect of the daily use of oatmeal, corn-bread, and boiled fresh fish ; and the use of bakers' bread as diet. This also predisposes the mother to nervous diseases, which correlate to the deterioration of the teeth, each influencing, and, in a measure, causing the other ; besides, the modern system of over-stimulating the nervous system by early precocity, causing a defective process of assimilation and tissue-formation, especially in teeth.

Symptoms.—Difficult teething exhibits itself in a variety of ways, but the great bulk of the symptoms are reflex—irritation transmitted to a weakened bulb and cord. The child becomes fretful, its skin white ; nutrition is impaired ; the gums swell, spread, become hot, tender ; the child is continually working with its mouth, desiring to bite something ; irritable, restless, peevish ; some fever ; increased heat in the head, or pallor, with dilatation of pupils ; there is often a hectic flush on cheeks, with eruption on the skin, especially on face and scalp ; a looseness of the bowels, with griping stools, of a green, pale, or leaden hue, sometimes mucus ; and the child becomes very peevish ; starts in its sleep ; eyes partially open ; rolls head, and throws its arms about, and seems convulsed in particular parts of the body. It exhibits great indications of brain-irritation : in some cases screaming, throwing head back, thrusting its fingers into mouth ; in other cases there is cough, difficulty of breathing, emaciation, marasmus, great fever, thirst, convulsions, and a bad train of symptoms.

When the child is promptly cared for, its secretions and excretions kept natural, and elements supplied in its milk from which nature can make teeth, very few of the violent symptoms attendant on such a condition occur, and we need not apprehend any bad symptoms from teething. Infants cut their teeth more easily and readily in winter than in summer; boys more difficult than girls. What is to be apprehended is the reflex condition, which affects all children to a greater or less degree.

Treatment.—The irritation of teething causes the gums to swell and become tender to the touch; there is fever, with irritation of nervous system, with occasional convulsions. In such cases, where the gums are considerably swollen, and the child seems to suffer much from the irritation of the tooth in working its way out, and when the tooth is near the surface, it will be exposed by the retraction of the gum, then it may be advisable to relieve it with a lancet; when no such appearances present themselves, and the child is very restless and uneasy, we can do little more than attend to the different symptoms. In the mildest forms of dentition, sedation is very useful; bathing twice daily; put thirty drops of tincture of aconite in half a tumbler of water, and give a teaspoonful every one or two hours; if there be strong nervous symptoms, with a tendency to convulsions, add a few drops of tincture green root gelseminum. If the breath is very acid, lime-water and milk, or the neutralizing mixture, or ozone-water; if there seems to be griping, open bowels with cascara, and follow with infusion of anise-seed. The above also will relieve the bowels if constipated. In some cases a grain of leptandra rubbed up in pulverized licorice is very efficient. If there is restlessness, violent startings, with screaming and twitchings—precursors of convulsions—bromide of potass and ammonia in lavender or cinnamon-water.

Opium, or laudanum, or paragoric, should not be administered to teething infants for the purpose of keeping them quiet. It is a most injurious practice—dries up their secretions, and whittles down their vital force. Mothers, and especially nurses, are prone to resort to that drug in some soothing syrup, so as to have their own rest undisturbed. The only drugs of real merit are lime-water in milk, compound hypophosphites of lime and soda in juice of raw meat, and ozone-water; two of which could be given at alternate periods, say, every two hours; otherwise the treatment must be upon general principles. If there is fever, aconite and asclepias should be given; urine scanty and high-colored, parsley-root tea and sweet spirits of nitre. Watch convulsions; let mother have tincture of lobelia on hand, and if she sees twitchings or throwing head back, alternate pallor and redness, administer a few drops as occasion

demands. A free action of the bowels during dentition should not be stopped—not unless the motions are very frequent, and then guardedly. Any other symptom that arises should be managed upon general principles. The practice adopted of giving infants toys made of hard rubber or ivory to suck and hold in the mouth, upon which they can press their gums during teething, is highly improper, as it has a tendency to harden the gums.

Aphthæ, or Nursing Sore-Mouth, is most common in ill-fed children, and the parasite present often makes destructive ulceration of the gums. (See *Aphthæ*.) Pure air, proper exercise, wholesome, nutritious milk; flannel clothing, regular bathing, secretions, and everything that is calculated to promote good health, will greatly contribute to the safety of dentition. At the same time guard the reflex centres, by keeping them well stimulated by proper means.

In all cases of tardy, difficult, or painful dentition, we must never ignore the main defect—a want of histo-genetic material in the blood; provide in all cases material from which the system can elaborate teeth.

Weaning Brash is a term applied by mothers and nurses to a disorder that takes place upon being suddenly deprived of the mother's milk by disease, pregnancy, or death, or where children are reared artificially with bad milk. The use of the milk-food has stamped this disorder out. It consisted in derangement of the stomach, vomiting, and purging, with green stools; and if it occurred during the hot weather, speedily merged into that fatal disease, cholera infantum, with its sequel, *tabes mesenterica*. A quick transition from one kind of food to another should never take place; it should be progressive, and adapted to the age and condition of the child.

MALFORMATIONS AND DEFORMITIES.

Some attribute them to impressions made upon the mother during pregnancy, and there is no doubt but this is a fruitful source; others attribute them to defects, or deficiencies, or absence of certain histo-genetic material in the body; and others, to a variety of causes. But there can be little doubt that by far the most prolific causes of deformities are incompatibility of temperament, close consanguinity, in-and-in-breeding. Although this is the main source of the trouble, it would be well in our present state of civilization, where the nervous system is developed at the expense of the physical, where the brain is alive, vivid to external impressions, to guard pregnant mothers from theatre scenes, deformities, animal or fowl killing, choreac movements, fits, appalling accidents, death, or anything of an unfavorable nature that would be likely to impress her keenly

or acutely. Defects or mutilations may also be classed under the same causes. Imbecility, an abrogation of the facial angle of 45, or idiocy, is likely to be due to the use of whisky and tobacco by the father, the former causing true imbecility, the latter wiping out the typical convolutions of the brain.

As a rule, all extra fingers, and toes, and other malformations, should be rectified at birth.

Tongue-Tie.—The tongue may be unnaturally adherent to the sides, or to the under surface of the mouth, so that nursing may be prevented. The adhesions must be carefully and cautiously divided with a bistoury and the bleeding controlled by the perchloride of iron. Genuine tongue-tie is when the bridle of the tongue is so short as to reach nearly to its tip and interfere with its motions. This is to be remedied by dividing the edge of the bridle with the scissors.

Hare-Lip.—The simplest degree of this deformity is single hare-lip, in which the lip is fissured on one side; it may be complicated, with partial or complete fissure of the palate. The greatest malformation of this kind is double hare-lip and fissure of the palate. The arrest of development occurs only in the upper lip; the fissure never occurs in the median line, but always under one or both nostrils, and the deformity may vary from a notch to a complete fissure, extending into the nostrils. The only point of interest is the treatment. The operation for the relief of this difficulty should be performed immediately after birth. The child, after being properly nourished, should be wrapped up in a sheet; the edges of the cleft should be liberally pared, and then hare-lip-pins inserted two thirds the thickness of the lips, from its anterior face. A sufficient number of pins should be used, and over each, the figure 8, formed of lead wire, which should have the preference to silk.

Cleft Palate.—Is often associated with hare-lip, and frequently closes when the lips are healed. The operation for this has generally to be delayed till patient becomes ten or fourteen years of age, or even older.

Wry-Neck.—A distortion in which the head is drawn to one side, and the face to the opposite; due to the contraction of one sterno-mastoid muscle. Paralysis of one muscle allows the other to overpower its fellow.

Causes.—Blows on neck; caries of cervical vertebrae; enlargement of cervical glands on one side; to the cicatrix of a burn or ulcer; rheumatism; gout.

Treatment.—Varies much, but generally embraces alteratives and tonics, with shampooing, friction, electricity of the paralyzed side. Try every means to improve general health; all failing, the muscle on sound side to be divided.

Knock-Knees.—Is due to a relaxation of the internal lateral ligaments of the knee-joints, allowing femur and tibia to become separated, so that an angular obliquity of the bones results. It is common in tubercular children; may be noticed before beginning to walk. The best plan is to treat for tuberculae, and resort to every means to build up the general health. Massage locally, twice daily.

Bow-Legs.—Belongs essentially to rickets, and is generally due to the starch-feeding of infants. It can be overcome by a better diet, one containing vegetable phosphates, as corn and oat-meal mush, boiled white-fish, animal food, etc.; keeping patient off his feet, and in addition, using locally, massage, salt-water baths, and general treatment for tuberculae. Perseverance is essential, as many months are indispensable for a cure.

Club-Foot.—A gradual change in form and positions of tarsal bones, chiefly owing to undue action, or paralysis of certain muscles, or their atrophy, or want of development, or to contraction of tendons. Usually congenital, and dependent on same causes as other malformations; or it can be acquired by conditions affecting either the circulation of nerves, or growth of muscles. There are quite a number of varieties, but for all practical purposes they may be embraced under four principal heads.

(1.) *Talipes Equinus*: This is the most common form, and consists either in a rigid contraction of the tendo-achillis, of the muscles of the calf of the leg, so that the heel cannot be brought to the ground, and the patient walks on the metatarsal bones. When this is not congenital, it is liable to occur during dentition, from worms, acidity, and other reflex causes of irritation. The patient, either from incompatibility, or other causes, is very tubercular; and the slightest irritation in the body is transmitted to the weakened nerves. A cure is easily effected by a division of the tendo-achillis under the skin.

(2.) *Talipes Varus*: The heel is raised, the inner edge of the foot is drawn upwards, and the outer edge rests on the ground. In extreme cases, patient walks on dorsum of foot and outer ankle. There is contraction of the muscles of the calf and adductors of the foot. Every tendon that aids in producing the deformity should be freely divided under the skin, and, last of all, the tendo-achillis.

(3.) *Talipes Valgus*: This is the direct reverse of the talipes varus. The outer edge of foot drawn upwards, so that patient rests on inside of instep and inner ankle. All the tendons that are concerned in producing the deformity are to be cut under the skin.

(4.) *Talipes Calcaneus*: Elevation of the toes and falling on

the heel, so that the patient walks on the latter. This is usually brought about by loss of nerve-power, or degeneration of the muscles of the calf, which affords the opposing muscles a chance of drawing the foot into the abnormal position.

Every tendon to be divided subcutaneously, so as to bring the foot into its proper position.

The principal upon which the tendons of the various muscles are divided, is very simple: A cut, or incision, is made under the skin, so as to prevent any suppuration—the cut surfaces, or ends, although stretched apart quite a space, heal by connective tissue or lymph, which lengthens the tendon the amount desired. It is necessary to wear a boot if performed at birth, as it ought to be, or a week after.

When not congenital, but coming on during childhood, many cases can be cured without operation by the removal of the source of the irritation, by good food, fresh air, sea-bathing, tonics, and by shampooing, friction, or massage, with oil, and a proper use of bandages, splints, boots, adhesive plasters and the like. Rheumatism and gout should be carefully guarded against. We cannot too strongly insist upon a most constructive treatment as the best means of overcoming the true cause of the difficulty.

Flat Foot.—A sinking of the sole of the foot from relaxation of the supporting ligaments. Walking is rendered awkward, slow, painful, and in bad cases, lameness and deformity. It is usually the result of debility, and can be remedied by the mother when the child is quite young, by bathing, friction, and good nutrition.

Webbed Fingers and Toes.—In rectifying this malformation, the best plan is to make a small incision at the junction of fingers or toes, through which introduce a piece of lead ribbon which should be permitted to remain about ten days, so as to give ample time for healing. Then remove and slit up the web its entire length, and dress with the lead ribbon, or otherwise. If the above method is not observed the webbing often returns.

THE NUTRITION OF THE INFANT.

Milk is the natural food of the infant up to the period when it is supplied with teeth for mastication. Its stomach is adapted solely for its digestion, and it is the only proper element for building up the body. Milk, if healthy, supplies everything for the whole organism, from which bone, muscle, brain, gland, etc., can be constructed, repaired, and renovated. Milk is pre-eminently suited for the rapid oxidation, increased temperature, accelerated respiration and circulation, the only diet for building up infant organization. The milk taken by the child

represents so much potential energy ; but before that energy can assume a vital form, the food must be converted into tissue, and in that conversion a large amount of energy must be expended. All the constructing and repairing powers in the infant are more active than in the adult. The infant requires, over and above the wants of the man, not only food for flesh laid on, but also for the energy used in making up that living, sculptured flesh out of materials that serve for food. In the growing organism there is a greater instability in the nutritive process, and this instability must be guarded against by having good milk, else we will have defects in blood-formation. American mothers have been accused of being bad nurses. Now, this is both true and false ; *true*, she is highly civilized, quick, excitable, and often, in the act of nursing, allows care, worry, to distract her attention ; will hastily lay her little one down before it has even partially emptied the breast, which act of all others causes the milk to dry up ; *true*, she is absorbed in lectures, theatres, balls, and other frivolities, which engender late hours and irregularity, which has a depressing effect upon her ; and her literature is not good ; *true*, her diet is not the proper kind or quality for a nursing mother, her ices, ice-cream, iced drinks, candies, pastry, etc., are pernicious and highly detrimental to the secretion of milk ; but let her remove these and other defects, she is as good a nurse as any other mothers of her race. Take the American mother, free from toil, care, struggle for existence ; free from the vices and depressing influences of city life, with a good diet of beef, mutton, poultry, game, eggs, milk, oatmeal porridge, corn-bread, carrots, parsnips, fruit, and other vegetables, she is a good nurse. Excess of feeding, alcoholic or malt liquors, wines, and sloppy food, never should be recommended ; neither is tea or coffee of any utility.

The nutrition of the child is of the greatest importance, because in all our large cities we lose two-thirds of our entire infantile population during the first two years of existence, chiefly by bad milk, careless or improper nursing, insufficient food, and insanitary conditions. The mother's milk is too often deteriorated by fashion, theatres, improper food, worry, work, and other causes, and the want never can be supplied by artificial means, for there is no substitute for the life-giving mother's milk. If we could only teach mothers how much suffering they could save, how many valuable lives they could prolong, by seeing that their children have proper food, it would be a holy task. Many modern mothers can only nurse their children partially, or not at all. Their milk is often deficient through improper diet, and not emptying the breast properly ; besides, the secretion decreases by care, worry, struggle, work, or her health

may be feeble, or delicate; or her vital energies taxed by some latent condition, that she may have no milk.

In this condition the infant must have nourishment; if rich, a wet nurse could be provided; if poor, the cow's milk, or milk-food.

As regards wet-nurses, there is always great danger to be apprehended from them in a moral and physical point of view. They are generally unfortunate women, women with hidden vices, uneducated, full of prejudices and disease, and the irregularity of their past life has a bad influence on the milk and moral well-being of the child; and it is doubtful, rather than run risks of moral and physical degradation, whether artificial nutrition, administered by its own mother, or some other intelligent person, properly adapted to its age and development, is not the best. Artificial nourishment is often better than run the risk of wet-nursing. The great trouble of late years in this particular, has been that parties, by advertisements and certificates of ignorant physicians, have foisted upon the people an immense array of infant food, all chiefly composed of starch. Indeed, starch-food is forced upon the mother wherever she goes, as a diet for her child. Now, our infants cannot digest starch, their stomachs are not made for it, neither have they the means of converting it into sugar, like an adult; so children fed upon starch, as rice-flour, farina, Liebig's food, arrowroot, starve; they have no teeth; their bones and brain are destitute of phosphates. God never made a Caucasian infant to eat starch; there is not a trace of it in the white mother's milk. A Mongolian or Negro, without cerebral convolutions, may thrive on it, but never the white race. So, if there must be artificial feeding, let us have cow's milk or milk-food; and with greater care, more fresh air, rigid cleanliness, abundance of sleep, an avoidance of insanitary states and contagious diseases, we may be able to raise the child.

The proper food, then, of all infants, is milk. That gives everything wanted—development and growth; on it they are healthy and thrive. The first two months of life, cow's milk two-thirds, water one-third, with very little sugar, comes very near that of mother's milk. There is still a difficulty here: if a cow is fed on pasture alone, the milk is very poor; but if they are fed with cornmeal and bran, in addition to abundance of good pasture, the milk is excellent; and besides, it must be seen that the cow is free from foot-disease, or tuberculosis, and the milker not affected by syphilis. In all our large cities there is much impure milk—milk loaded with diseased germs; besides, nearly all the high-bred cows are affected with tubercle; so if matters are not of the purest kind, condensed milk should

be used ; for in the process of manufacturing, the diseased germs are destroyed.

About the third month, nourishment should be more substantial ; for that is the period for true, rational nourishment to be given for the future welfare of the child. Dr. Gerber has placed before the American parents a nourishment for children at this period that is unsurpassed, and satisfies all the physiological and chemical demands. It consists of the best milk, the wheaten phosphates, no starch, best cane-sugar, and a normal quantity of saline matter. The combination is perfect, and the most appropriate for infant-food, and of immense value as an article of general nutrition. It is highly nourishing, its composition is pure, fresh, superior to anything ever introduced ; it is very easily digested ; keeps well, never ferments or sours ; and is better than city milk, because it is free from all diseased germs. Besides, it nourishes brain and bone well, consequently teething is easy ; excellent for debility ; children and invalids never tire of it, but rapidly increase in flesh and strength upon it. It is so excellent in teething that they come easy, regular, without suffering ; no diarrhœa, or vomiting, or skin eruptions. It supplies a long-felt want, to wit : a perfect form of artificial nutrition—the best that has ever been offered in the world. The milk-food is intended to be used when the infant is about from two to three months old. Its superiority consists in its containing no starch, which has been so detrimental to the digestion of children ; and to the fact that bone and brain elements in it are abundant.

As soon as the child has completed its dentition, the mouth, salivary glands, stomach, and pancreas, become gradually adapted to digest solid food, and a change or transition from milk-food should be very progressively made. Modern children are permitted by both parents to take the ordinary course of the house, which is a great wrong on the part of the parents. For example, the use of tea and coffee by children is very injurious, as it overstimulates and exhausts their nervous systems ; gives rise to catarrh of the stomach in their period of infancy, and predisposes them to dyspepsia and cancer of stomach in more mature years. The use of sweets, ice-cream, pastry, dumplings, is also improper food, because the gastric juices are not strong enough for their dissolution ; so also with pork, veal, cabbage, nuts, salt fish, and corned beef, totally unfit for the diet of a child. Children should be early taught the injurious effects of drinking at meals. Whatever fluids are necessary should consist of milk or water. A new system of dietetics should be inculcated, or rather, an old method revived, among the children. All, irrespective of sex, or condition in life, should, from weaning, up till twenty-one years of age, have a special

diet—one of brain and bone-elements; one hearty meal daily of oatmeal porridge and milk or cream. This should be a daily meal from September 1st to May 1st; during the very hot months of the summer better to discontinue its use, as it is somewhat heating. Corn-bread, made without baking-powder, should be a daily and staple article of diet; boiled white-fish and home-made bread. Bakers' bread, with its noxious compounds of soda, tartaric acid, alum, sulphuric acid, etc., is unfit for child-food, as the phosphates are destroyed in the process of whitening. The oatmeal, corn, and fish diet should be insisted on, as calculated to promote the nutrition of brain and bone. No baking-powders should be tolerated in the culinary department of any family, as their use is destructive to the phosphates in all our cereals. To the toothless babe starch diet is starvation, but after dentition is completed they can digest starch; but in our climate, with its highly oxygenized atmosphere, our children do not require much starch-food, such as potatoes, arrowroot, tapioca, rice; there are no brain elements in them—not of thought; they are converted into sugar, and thus into calorification—a process not very essential to the precocious American; so, as a rule, they should be sparingly fed, Carrots, parsnips, onions, vegetables, and ripe fruit generally. are conducive to health and longevity in the child.

The Child—its care and culture, warding off and curing its diseases, must be carried out on physiological principles. In looking at the dawning intellect, we must remember that *mind* is brain-function, just as locomotion is one form of muscle-function. The brain, as it matures, acts, thinks, reasons, judges, and forms purposes. As the size, weight, form, and development of the bony skeleton, with its muscular apparatus, determine the limits and nature of physical power and activity, so do the size, weight, form, and development of the brain, with its apparatus of sense-organs, determine the limit and nature of intellectual power and activity. Its personal characteristics are passed down from the parents; so that there are mental and moral qualities offering themselves for care and culture. The aggregate qualities of the parents, embodied in the child, are subject to surrounding influences. It is essential to recognize this initial fact, so as to develop the good, and repress the evil elements of its nature. Every child is charged with potential energies that need to be stimulated for good, trained and taught in a manner and upon a principle peculiar to her or himself—the influences brought to bear upon it; the tasks imposed; the exercise of its body and mind—its *regime*, selected and graduated to its undetermined nature, and its special needs.

EMERGENCIES, AND THEIR TREATMENT.

HÆMORRHAGES.

External hæmorrhage must be arrested by pressure, by tying a bandage around limb, and using torsion till medical aid is reached.

Hæmorrhage from the Nose.—Raise both arms above the head, apply cold—ice, if possible, to the nape of neck and over nose, and if necessary plug the nostrils with cotton saturated with vinegar.

Hæmorrhage from the Stomach.—A solution of common salt; small pieces of ice; gallic acid; digitalis; gelseminum.

Hæmorrhage from the Lungs.—A solution of common salt; tincture of iron; digitalis; gallic acid; solution of alum; ice.

Hæmorrhage from the Bowels.—Turpentine; sulphuric acid; digitalis; bayberry.

Hæmorrhage from the Kidneys.—Heat to loins; gelseminum in infusion of uva ursi; gallic acid; ergot; if bladder is full of clots, wash it out.

Hæmorrhage from the Uterus.—If it occurs during un married life, from fright, shocks: rest; elevation of pelvis and foot of bed, head low; digitalis; gallic acid; turpentine and sulphuric acid; no hot drinks or food; perfect quiet.

Hæmorrhage Before Delivery.—Rest in recumbent posture, hips elevated, foot of bed raised, head low; opium in alternation with the viburnum compound; nothing hot, no excitement.

Hæmorrhage After Delivery.—Patient well bandaged from middle of thighs to above the navel; compress over uterus; elevation of hips and foot of bed; no excitement, nothing heating. If the contents of uterus are removed, there is not much likelihood of hæmorrhage. If uterus has contracted on after-birth, or a portion of it, plug vagina with a sponge, or sponges, saturated with vinegar, which will excite contraction, and violent pain, and expulsion. Give uterine stimulants, as capsicum in warm milk; quinine; but avoid ergot, if possible. If uterus dilates sufficiently, remove after-birth, or clots, with fingers. Don't give the turpentine mixture till all has been removed; then it is very useful.

Hæmorrhage in which the After-birth is over the Mouth of the Uterus, or Placenta Prævia.—Plug the vagina with sponges; if that fails, dilate the neck, detach enough of the placenta to admit the hand, rupture membranes, seize the feet, and bring down, and hurry up delivery by internal and local stimulants. There must be no wait or hesitation.

Contusions, or Ecchymosis.—Arnica, marigold, muriate of ammonia, leeches.

WOUNDS.

Wounds of the Throat.—Arrest the flow of blood by pressure and ligature.

Wounds of the Chest.—Hæmorrhage should be controlled by internal remedies. In some cases the intercostal arteries can be ligated. Wounds of the heart are not always fatal.

Wounds of the Abdomen.—Generally either punctured or incised. If bleeding is profuse, tie the vessels, if they admit of it. If the intestines protrude, return them; and if the wound is not large enough for the purpose, enlarge it. If they are wounded, stitch them carefully up and return, carefully sponging away any blood or escaped fæces.

Wounds of liver, kidneys, bladder, are very fatal.

Wounds of the Perinæum.—Hurried labor, want of support, ignorant use of the forceps, ergot, and other causes, render the perinæum liable to be frequently torn or lacerated. As soon as the lochial discharge ceases, edges to be carefully pared and stitched up.

Gun-shot Wounds.—Must all be treated on general principles. The essential features are to rouse the patient from the state of collapse, control hæmorrhage, and, when prostration is overcome, foreign bodies, particles of bone, pieces of clothing, bullets, splinters of wood, or other matter, are to be removed or extracted, and the wound treated on general principles, with antiseptic dressing. Patient kept well over on it to allow foreign bodies, or morbid matter, to flow out by gravitation.

Limbs Torn by Marching, or other Violence.—Tie strong handkerchief around sound part, and use torsion to prevent hæmorrhage until surgeon arrives.

In all accidents, arrest the hæmorrhage before moving the patient. If unable to walk, some conveyance—a settee, or litter, or carriage, according to the nature of the case.

The injured person should be taken to nearest hospital, or house; clothes ripped up, so as to uncover them and ascertain the extent of the injury; all onlookers excluded.

The great point is, if there is a wound, to arrest the flow of blood by compressing the limb above the injury sufficiently tight until a surgeon arrives.

Foreign Bodies in the Air Passages.—Foreign bodies, as seeds, beans, fruit-stones, buttons, pins, coins, beads, marbles, pebbles, fish-bones, etc., may pass into the larynx, trachea, and bronchi of children; or vomited matter, pus from abscess, and other substances.

The entrance of a foreign body from without usually takes place during a sudden, strong, deep inspiration. It at once causes violent spasmodic cough, difficulty of breathing, a sense of impending suffocation, or even immediate death. In a few minutes symptoms become less severe; cough and difficulty of breathing return at intervals. If the body remains in the *larynx*, there will be harassing cough, of a suffocative character; loss of voice; an inability to speak above a whisper; pain in swallowing; tenderness; noisy, hissing, respiration, with difficulty of breathing. If it descends into the *trachea*, it is seldom stationary, can sometimes be felt by the hand externally to rise and fall; the change in position gives rise to severe spasmodic attacks of difficulty of breathing; a flapping, valvelike sound, owing to a foreign body being forced against the rima glottidis, in expiration. If the substance passes down the bronchial tubes, it fortunately takes to the right, directed by the bronchial septum. Auscultation and percussion will reveal the point, whether the patient's lung is permeated by air. Bronchitis and pneumonia are now to be dreaded.

Fluids may enter the larynx, but they usually induce a sense of choking, with convulsive cough, which causes their expulsion; but if very abundant, as in drowning, they may cause death.

Treatment.—If the body be at the entrance of the larynx, or between the vocal cords, it may be seen, and seized with polypus forceps. This failing, place the child's head downwards, and slap quickly and smartly on back. Emetics, lobelia, and snuffs should be tried.

If the body remains in the larynx, it should be at once opened, and the substance will probably be either ejected through the glottidis or the artificial opening. If successful, the opening should be stitched up, and strips of adhesive plaster applied between.

Various other methods have been suggested, as the inhalation of chloroform, hanging patient up by feet, and slapping briskly on back.

Foreign Bodies in the Nose, such as peas, small shot, frequently occur in children. Excite sneezing, or use nasal douche, or, if possible, extract them with the forceps.

Foreign Bodies in Ear, such as grains of wheat, barley; slate-pencil, seeds, insects, cause great irritation.

Treatment.—In case of insects, fill the ear with alcohol,

turning patient on sound side; or with vinegar and salt in solution, and plug with cotton-wool. Insect will be found usually on the plug. Other bodies must be removed by syringing out the ear twice daily with tepid water.

Foreign Bodies in the Eyes, such as sand, cinders, broken eyelashes, which often lodge on one of the eyelids. In all cases they should be immediately removed, to prevent inflammation.

Treatment.—Invert the eyelids, and remove the foreign body with a small camel's-hair brush, dipped in a solution of one grain of chloride of gold to one ounce of water.

Burns and Scalds.—Vinegar, lard, and flour are in every house. Put on flour, beat up in lard, thick, covering the burn half an inch. If vinegar is applied, keep constantly wet, and as soon as the carbolic acid mixture can be procured, let it have the preference for a permanent dressing.

Shock, or Collapse.—Artificial heat, to feet, inside of thighs, and arms; perfect rest, recumbent posture; diffusible stimulants. If there is no reaction, artificial respiration; cloths, wrung out of boiling water, over heart; enemata of linseed tea, with spirits of turpentine; friction to entire surface; electricity.

Sun-Stroke, in whatever form, is best treated by placing patient in recumbent posture, in a cool room, near an open window; removing his clothes, and keeping tepid water constantly applied to the entire body; bromide of ammonium and tepid water internally, and also by the rectum. Place the greatest reliance upon tepid water and ammonia; warmer water, if skin is cold.

Retention of Urine.—Hot hip-bath, with lobelia; tincture of gelseminum internally; a poultice of hot, bruised, roasted onions to perinæum; the running of a stream from a narrow orifice; all failing, catheter.

Dog or Snake-bite.—Apply firmly a ligature above the bitten part; bathe it freely with very hot water. While so doing, chop a few red onions very fine; then mix in some common salt, and bind an inch thick over the wound. A solution of muriate of ammonia answers better for a dressing, if at hand; if so, keep it constantly wet, and the solution as strong as it can be made; keep either applied till the physician arrives. If a *snake-bite*, don't wait, but begin administering half a tumbler of the best brandy or whiskey that can be got, every five minutes, till patient is perfectly drunk.

Lightning.—Usually causes instant death by paralysis; when not immediate, the tissues may be charred, or simply the loss of speech, sight, hearing; or hæmorrhage from mucous membrane, from eyes, ears, mouth, rectum. General principles, according to the condition of the patient. Burns treated like other burns; collapse, by stimulants.

INSENSIBILITY FROM VARIOUS CAUSES.

When an individual has been picked up on the road or street insensible, irrational, or inarticulate, and his antecedents unknown, what is the matter? Is he ill, drunk, drugged, or suffering from some brain concussion, or from coma after an epileptic fit, or otherwise?

Syncope, trance, catalepsy, coma, are names used by medical writers to designate states of insensibility, which the public call fits.

Syncope is fainting, a condition of the body in which there is a death-like pallor, with loss of muscular power and consciousness; a faint is usually transitory, due to shock. In it the person collapses, rather than falls to the ground; his knees are bent under him, he subsides into the sitting posture, his head drops forward, and by the time his head has thus sunk to the level of the heart, or below it, the circulation of the brain becomes sufficiently restored for consciousness to return. In a faint, a person seldom bruises his face. Upon waking, he may feel sick, giddy, or alarmed, but his brain resumes its thinking functions at once, and entirely.

Recumbent posture on right side, articles of dress loosened, dashing cold water on face and front of chest, cautious inhalation of ammonia, diffusible stimulants.

Trance is a state of death-like faintness, in which some consciousness is retained, but inability to speak. In trance, the body appears inanimate, there is no power to move a muscle, the limbs are flexible; he may hear, see, and remember all that goes on around him. There is no perceptible pulse or respiration; hence trance has been, and often is, mistaken for death, as the temperature is lowered; muscles re-act to galvanic stimulus. There should be no hurried burial alive, or post-mortem, unless rigor mortis or signs of putrefaction be present.

Treat same as *Collapse*—artificial heat, enemata of turpentine, cups to both sides of entire spine, over abdomen; and as soon as he can swallow, diffusible stimulants.

Catalepsy, a rare inanimate condition; insensible, stiff, unable to move, or articulate; pulse slow, respirations diminished; extremities cold and flabby. He or she may be pinched, pricked, beat without flinching—statue-like, but perfect muteness. There is neither the lividity of asphyxia, nor the pallor and general flexibility of syncope, nor the stertor of coma, nor the paralysis of epilepsy, nor the movements and dreamy mental automatism of somnambulism.

Treat same as *Hysteria*, or *Anæmia of Brain, Cord, and Ganglionic Centre*.

Coma, or deep sleep, may be due to very many causes, as to

pressure exercised upon the brain from effusion within the ventricles, and outside of the membranes; to alteration in the molecular state of brain from concussion, contusion, apoplectic extravasation; to brain-poisoning by insufficiently oxidized blood; to uræmic blood, narcotics, anæsthetics, inebriants.

It is impossible to give accurately positive land-marks for diagnosing each kind of coma.

Profound Coma is present in serous effusion into the ventricles of the brain, such as arises from extensive burns, or from tubercular meningitis in later stages. Patient is first sleepy, then drowsy, then stupor, slow of comprehension, difficult to wake, and finally, incapable of being roused at all. The breathing is stertorous; at first he can swallow, then he fails to do so; pupils are not characteristic, most frequently contracted, and then dilated.

Coma, due to fracture or effusion of blood, as in sanguineous apoplexy, is sudden in its advent. The breathing is stertorous, pupils contracted, heat may be normal, skin perspires freely. In fracture of the skull, there is oozing of blood or serum from ear and nose; or there may be blueness, humidity, ecchymosis of the eye, neck. In apoplectic cases, face often turgid with blood.

Coma, due to molecular death of a portion of the brain, the face is pale, heat lowered, pupils unequal, evidence of hemiplegia, or some form of paralysis.

Coma, due to some brain-poisoning, as deficiency of oxygen in pneumonia; nitrous oxide gas; the nose, lips, neck, face, and other parts, are livid, often black.

If patient has breathed carbonic acid gas, say, from a lime-kiln, or sulphuretted hydrogen from some source, those two gases arrest the oxygen-carrying properties of the blood, and this blood-change, or damage, is not recoverable from brain-poisoning; and coma by anæsthetics and inebriants is usually detectable by the breath of the comatose person. Apoplexy and dead-drunkness are often mixed.

In Brain-Poisoning, try artificial respiration, abundance of fresh air, cloths out of boiling water over heart; enemata, say, one and a quarter pints of cold or warm water, with a tablespoonful of salt; cups to nape of neck; mustard to feet and hands; free purgation, if he can swallow.

Uræmic Coma is recognized by œdema of eyelids, or extremities; wax-like pallor, urniferous odor of breath and skin, furred tongue, pearly conjunctiva, dilated pupils.

Try warm bath, free purgation with salines, and hypodermic injections of pilocarpine.

Coma of an epileptic fit is usually recognized by the bruises, torn or soiled clothes; indications, as if the tongue was bitten.

Patient to be placed on right side, clothes loosened or removed; enemata of lobelia, capsicum, and valerian; or hypodermic injection of one-fourth of a grain of sulphate of morphia, if over seventeen years of age; dashing cold water on the patient, of little service.

Opium Coma.—Profound stupor, closed eyelids, contracted pupils, upturned eyeballs, pale face, cool, clammy skin, forehead beaded with heavy perspiration, limbs lax; breathing slackens, reaching as low an ebb as six per minute; coma profound; no responsive movement to pricking, pinching, or other stimulation. The body will not walk, it is only dragged; lips become livid, surface colder, breathing, at long intervals, and pulse, nearly imperceptible. This coma may be mistaken for effusion into the pons; so it is well, in all cases of profound coma, with contracted pupil, to exercise care, unless there be collateral evidence—as a laudanum or morphia bottle—about, or marks of a hypodermic syringe, lest the case be apoplexy into the pons—a kind of coma that is not benefited by bastinado, beating with wet towels or willow rods, walking about, or all the caffeine, or coffee, pumped into the body. In all cases of effusions, fracture, apoplexy, adhere to cups to nape of neck, stimulants to extremities, open bowels. (See *Opium*.)

ASPHYXIA.

This term is generally used to designate suspended animation, produced by the non-conversion of the venous blood of the lungs into arterial. The supply of air being cut off, the unchanged venous blood of the pulmonary artery passes into the minute radicles of the pulmonary veins, which require arterial blood to excite them; more or less stagnation takes place in the pulmonary capillaries, and death frequently ensues from this cause. Besides, the non-oxygenized blood is very poisonous to the brain, and has no stimulus to the ventricles of the heart.

Causes.—Whatever prevents the ingress of air into the lungs, as effusion of lymph in acute laryngitis; congestion of the lungs in pneumonia; drowning, strangulation; obstruction of the larynx by foreign bodies; inhalation of chloroform, carbonic acid gas, other poisonous gases; narcotic poisons; injuries to the medulla oblongata; dislocation of the spine in cervical portion.

In all forms, the treatment resolves itself into the removal of foreign bodies, or water; allowing an ingress of pure air into the lungs; and in inducing warmth and circulation.

Asphyxia from Drowning.—The first effect felt by a drowning person is an urgent feeling of anxiety in the chest; the pulse becomes weak; the respirations become less, and the blood of a venous hue. The venous blood acts as a narcotic poison

on the brain—produces insensibility, loss of voluntary motion; surface becomes of a livid hue; the heart ceases to beat; the sphincters relax; body sinks to the bottom.

If life is utterly extinct, the pupils are dilated, jaws clenched, fingers and thumbs contracted, face pale.

Reanimation may take place from five minutes to three-quarters of an hour after immersion.

Asphyxia from Strangulation.—The first effect of tightening the cord around the neck, is the suspension of respiration, and engorgement of the brain with blood; then sensibility decreases; epileptic convulsions come on—suffusion, lividity, turgidity of the face and upper part of the body; eyes open; features distorted; hands clenched; sphincters relaxed. If the air is not perfectly excluded, the sufferings are: engorgement of head and brain greater. The action of the heart becomes more active as the death-struggle progresses, and continues beating after respiration has ceased.

Asphyxia from Poisonous Gases.—Carbonic acid gas is the most common—burning charcoal.

The usual symptoms being a deep sleep, with intense, throbbing headache, with weight and heat, especially about back of head; strong pulsations and tightness across the temples; vertigo; increased action of the heart, and often violent palpitation; confusion of ideas; failure of memory; nausea; hysteric sobbing. If the vapor has been breathed for some time, the symptoms will be: noises in the ears, partial or total loss of vision, disturbance of the senses.

Asphyxia, under the above conditions, depends upon accumulation of carbonic acid gas in the lungs, the want of oxygen in the blood—the natural stimulus of living tissue.

Appearances which Indicate Death.—Total suspension of breathing, and heart's action; eyelids half closed and pupils dilated; jaws clenched; tongue appearing between teeth, with frothy mucus about the mouth and nostrils; fingers semi-contracted, with coldness and pallor of the surface.

Treatment of Asphyxia from Strangulation or Suffocation, Anæsthetics, Gases, etc.—

RULE 1. To Maintain a Free Entrance of Air into the Wind-Pipe.—Cleanse the mouth and nostrils; open the mouth; draw forth the patient's tongue, and keep it forward; an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from neck, chest, or waist. Make sure that there is no foreign body lodged in pharynx, larynx, or œsophagus. If water is there, place patient on abdomen, over a hogshead, and give half dozen rapid rolls. Then

RULE 2. To Adjust the Patient's Position.—Place the patient on his back, on a flat surface, inclined a little from the feet

upwards; raise and support the head and shoulders on a small, firm cushion, or folded article of dress, placed under the shoulder-blades. Supposing natural respiration has ceased, proceed—

RULE 3. *To Imitate the Movements of Breathing.*—Grasp patient's arms just above the elbows, and draw the arms gently and steadily upwards, until they meet above the head. (This is for the purpose of elevating the ribs, and thus expanding the chest, and drawing air into the lungs.) Pressure on the breast-bone will aid this. Repeat these movements alternately, deliberately, and perseveringly, fifteen times in a minute for two or three hours, or until a spontaneous effort to respire is perceived; immediately upon which, cease to imitate the movements of breathing, and proceed to induce circulation and warmth. Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate movements of breathing. Raise the body in twenty seconds in a sitting posture, and dash cold water against chest and face, and pass ammonia under the nose. Patient should not be kept in the bath longer than five or six minutes.

RULE 4. *To Excite Inspiration.*—During employment of above method excite nostrils with snuff, or ammonia; or tickle throat with a feather. Rub chest and face briskly; dash, alternately, hot and cold water on them.

RULE 5. *To Excite Circulation and Warmth.*—Wrap patient in dry blankets, and commence rubbing limbs upwards, firmly and energetically. Friction must be continued under dry blankets or over dry clothing.

Promote warmth of body by application of hot flannels, bottles, or bladders of hot water; heated bricks, etc., to armpits, over stomach and heart, between thighs and to soles of feet.

On restoration of life, when power of swallowing has returned, a teaspoonful of warm water, warm brandy and water, or coffee, should be given. Patient should be kept in bed; disposition to sleep encouraged. During reaction, large mustard plasters to chest and below shoulders will greatly relieve distressed breathing.

In cases where the base of the brain is weak, or where the narcotic, or gas, or anæsthetic operate with peculiar violence upon that part of the nervous organism, the jaws become not only clinched, but immovably rigid, so that the mouth cannot be opened; then the following method of resuscitation must be enforced. It is of special utility to the drowned.

The Method of Artificial Respiration for the Treatment of the Drowned.—*Rule 1.* The moment patient is taken out of the water instantly turn him downward, with a large, firm, roll of clothing under stomach and chest. Place one of his arms under his forehead, so as to keep his mouth from the ground.

Press with all your weight for three or four, or five seconds, each time upon the patient's back, so that the water is pressed out of lungs and stomach and drains freely out of mouth. Then:

Rule 2. Quickly turn patient, face upward, with a roll of clothing under back, just below shoulder-blades, and make the head hang back as low as possible. Place patient's hands above his head. Kneel, with patient's hips between your knees, and fix your elbows firmly against your hips. Now, grasping lower part of patient's naked chest, squeeze his sides together, pressing gradually forward, with all your might, for about three seconds, until your mouth is nearly over patient's mouth; then with a push, *suddenly* jerk yourself back. Rest about three seconds; then begin again, repeating these bellows-blowing movements with perfect regularity, so that the foul air may be pressed out and pure air drawn into the lungs, about eight or ten times per minute, for at least one hour, or until the patient breathes naturally.

Note.—The above directions must be used on the spot, the first instant the patient is taken from the water. A moment's delay and success may be hopeless. Prevent crowding around patient, as abundance of fresh air is important. Once he breathes be careful not to interrupt it. If they are very long apart, carefully continue between them the bellows-blowing movements, as before. After breathing is regular, let patient be rubbed dry, wrapped up in warm blankets, a little brandy and water can be given in small occasional doses, and then be left to rest and sleep. If no physician is near, any bystander can carry out those rules, as it requires no expert.

The above method is undoubtedly the best for the ejection of fluids from the stomach and thorax; with it there is no need in opening the mouth, which is usually closely clinched, and of drawing the tongue forward, which is impossible, the position of the patient obviating this necessity. The compression is most complete, and capable of the most delicate adaptation; it can be performed by one person in almost any situation, and continued as long as there is any use. It is the essential method in drowning, as it empties the water-logged thorax, relieves the filled bronchi, releases the immovable diaphragm, and thus makes respiration possible.

In the first position, with a roll of clothing under the stomach and thorax, makes shoulders the highest point; the nostrils and mouth the lowest. The displaced fluids run downwards, cleansing the upper air passages, which are perfectly drained. Then the pressure upon the back causes a complete ejection of the fluid, and we have a free passage for air established; an open air-way, and imitation of the natural movements.

The best method of compression is to place the thumbs at

the bottom of the cartilages of the ribs along their front part. The force then applied to the ribs is through the medium of the thoracic walls, so distributed as to give no shocks, no violence, but cause the ribs to move in their intercostal spaces.

A person of the most average intelligence can easily understand the two rules laid down. The kneeling position is not tiresome; the parts to be pressed are raised to the hands; the weight of the body is the chief force, and there are intervals of complete rest. It is true, the rate of respiration is one-half slower than other methods; but even with that, there is more oxygen supplied than a partially asphyxiated person can breathe, or bear, or assimilate; besides, it has the advantage of allowing better diffusion, and minimizes superfluous disturbances.

It is of especial advantage in drowning, because in that form of asphyxia the jaws are inseparably clinched, the slippery tongue is receded into the pharynx, and the epiglottis has fallen back so that no air can enter, and our first method cannot be carried out. It is very doubtful whether it is not the best for chloroform and syncope; it is certainly the quickest.

In asphyxia from chloroform, same management, but cloths wrung out of boiling water over heart, even to vesication.

Intense Cold.—Cold acts chiefly from without, freezing inwards, causing serous congestion of the three great cavities; with giddiness, inability to see, weakness, and rigidity of limbs; almost imperceptible respiration and pulse; tendency to profound sleep, or coma. Patient must be placed in a room without fire, and an attempt made at restoration of circulation and sensibility, by rubbing the body with snow, or ice, or cold water. Frictions with flannels, long continued; very gradual application of warmth; a stimulating enema, warm milk, with cap-sicum, coffee, beef-tea, or warm wine.

Syncope.—Fainting, sudden prostration. Remedies are: recumbent posture, to slow heart twelve or fifteen beats per minute; head low, cold air; cold water dashed over head and chest; smart beating on chest with a wet towel; friction or mustard plasters over region of heart; small quantities of ammonia or brandy.

The *syncope* in *anæmia* and *chlorosis* must be cautiously treated, with brandy, wine, carbonate of ammonia, and beef-juice, given both by the mouth and rectum, with artificial heat over the heart and extremities. The recumbent position should be maintained until the action of the heart is nearly normal.

Narcotic Poisons.—Patient to be placed on side, head slightly raised; cold affusion; heat to extremities; stimulating application to chest and back; the use of stomach-pump. The antidote with tea, or coffee, or solution of acetate of ammonia.

POISONS.

Any matters which, when absorbed into the system, are capable of destroying life, are termed a poison. Various terms are applied to poisons, according to their mode of action, as deadly, destructive, irritant, etc.

Poisons are usually arranged, according to their action, into three classes—*Irritant*, *Narcotic*, and *Narcotico-Irritant*.

I.—INORGANIC POISONS.

Acids.—*Nitric, Sulphuric, Muriatic, Oxalic, Carbolic, Fluoric Acids.*

Symptoms.—These acids, when swallowed, are strong corrosive poisons. They give rise to a sour, acrid taste; burning in the throat, which is increased by pressure, or swallowing, or coughing; eructation, and excruciating pain in the stomach; more or less puckering and excoriation about the mouth and parts touched with the acid. There is usually vomiting, and the matters vomited effervesce with the carbonate of lime. Nitric acid causes yellow stains; sulphuric, black; carbolic, white. If enough of the acid has been swallowed to destroy life, there is a numbness all over; countenance becomes glazed, extremities cold and clammy, followed by convulsions and death.

Treatment.—Evacuate the stomach immediately with lobelia, or stomach-pump; then any of the following remedies: Carbonate of soda; calcined magnesia; or carbonate of magnesia, freely in milk, or some mucilaginous drink. In the absence of these, whiting; soap and water; olive oil; linseed tea; gruel; milk; barley-water. In case of sulphuric acid, no water to be drunk, on account of the great heat evolved; soap and milk are always handy. The external parts, when injured, to be bathed with soap and water, and then olive oil and lime-water.

Prussic Acid.—Is a sedative poison, producing nausea, vomiting, giddiness, debility, quick pulse, weight, pain in the head; eructations having the flavor of the acid; spasms, tetanus, contracted pupil, convulsions, death.

Treatment.—No antidote known. Chlorine, and mixed oxides of iron, have been recommended, but their action is very doubtful. Cold effusion, electricity, stimulating frictions to chest and abdomen; ammonia to nostrils, artificial respiration. After recovery from immediate effects, strong coffee or brandy; sulphate of iron, in from five to ten-grain doses, is then thought well of.

Nitro-Benzole, or artificial oil of bitter almonds, should be treated by strong coffee, brandy, ammonia, turpentine, enemata; stimulation by friction, effusion, electricity, and animal charcoal.

Alkalies and their Salts.—*Ammonia*, or *Hartshorn*; *Muriate of Ammonia*, etc.: The overdose, or poisonous doses, of ammonia and its salts, give rise to violent, caustic, acrid taste; great heat in the throat, with destruction of the lining membrane; difficult and painful swallowing; vomiting of bloody matter, which turns the yellow of turmeric brown; intense, acute pain in the stomach; cold sweats, weakness, hiccough; violent, colicky pains, with purging, bloody stools; membranous flakes; death.

Treatment.—The vegetable acids, such as vinegar, lemon-juice, citric, and tartaric acid, in solution, are antidotes to the alkalies and their carbonates. The use of olive oil, or any other fixed oil, forms a soap with the free alkalies, and thus destroys their caustic effects.

Caustic Potassæ.—*Potassa*; *Liquor Potassæ*; *Strong Ley*; *Pearlash*; *Salts of Tartar*; *Saltpetre*; *Liver of Sulphur*; *Soda*; *Salts of Lemon*: Causes general inflammation of the entire alimentary canal, hiccough, suppression of urine, vomiting, delirium, and death. In milder cases, violent burning in the stomach, vomiting, griping, and debility.

Treatment.—Nitrate of potassa is neutralized by mucilaginous drinks, acidulated with vinegar or orange-juice; liver of sulphur by a solution of common salt; lemon-juice, citric acid are useful remedies to neutralize the other salts.

Earths and their Compounds.—*Baryta*, in the form of a *Carbonate*, *Muriate*, *Nitrate*; *Lime*: Gives rise to irritation, inflammation of the stomach, vomiting, griping, diarrhœa, headache, convulsions, debility, and death.

Treatment.—The sulphates of soda and magnesium are proper and effective remedies, and good antidotes to the salts of baryta. Phosphate of soda is also efficacious, as it converts the poison into an inert and insoluble form. Olive oil is excellent for lime.

Gases.—*Carbonic Acid Gas*; *Fixed Air*; *Carbonic Oxide*; *Fumes of Burning Charcoal*; *Chlorine*; *Sulphuretted Hydrogen*: Chlorine gas, if inhaled, causes great irritation of the lungs, cough, bloody expectoration, and confirmed congestion and inflammation. The carbonic acid gas, either from a charcoal-furnace or lime-kiln, is very soothing, producing asphyxia, spasm of the glottis, and apoplexy. Coal-gas and sulphuretted hydrogen, very similar.

Treatment.—The antidote to chlorine gas is the cautious inhalation of ammonia: the lung symptoms to be treated same as pneumonia. For the other gases, massage; cold and warm effusions alternately; the cold dash; friction; artificial respiration; electricity, positive pole to cervical portion of spine,

negative to chest and diaphragm. The chlorinated liquor soda is a good antidote for sulphuretted hydrogen.

Iodine.—*Iodide of Potassium; Iodide of Sodium*: Gives rise to burning pain in the throat; lacerating pain in the stomach, and gagging, but inability to vomit; suffusion of the eyes; excessive pain and tenderness of the epigastrium.

Treatment.—Encourage vomiting by copious doses of lobelia, in starch-water, and then administer starch freely, as it unites with the iodine, and forms an insoluble compound; if there is no starch at hand, gruel or arrowroot. The free administration of starch is to be continued as long as blue iodide of starch is vomited. In iodide of potass, vomiting to be encouraged by warm starch-water, and inflammation treated by the ordinary means.

Metals.—*Antimony; Tartar Emetic; Butter of Antimony; Oxide of Antimony*: Nausea, vomiting, great irritation and pain in the stomach, accompanied by burning; colicky pains in the bowels, with purging; sense of tightness in the throat; cramps, with persistent vomiting.

Treatment.—Vomiting to be encouraged by copious drinks of warm milk or greasy soup; an infusion of strong tea; or any astringent, as galls, oak-bark, Peruvian bark, formica, tannate of antimony, which are inert, and make good antidotes.

Arsenic.—*White Arsenic; Arsenious Acid; Sulphuret of Arsenic; Fowler's Solution; Arsenical Paste; Fly-Powder; Arsenite of Copper, or Paris-Green; Arsenical Soap*: Causes violent, burning pain in the region of the stomach and bowels; tenderness, on pressure; nausea, retching, vomiting; great dryness and tightness in the throat; hoarseness and difficulty of speech; the vomited products are either greenish, or yellowish, or streaked with blood; diarrhoea, with bearing-down; kidneys and bladder often affected; there is suppression of urine, severe burning in the entire urinary organs; convulsions, cramps; clammy sweats; lividity of the extremities; countenance collapsed; eyes injected and sparkling; delirium, and death.

Treatment.—Emetics of lobelia; vomiting to be encouraged by mucilagenous drinks, raw eggs in milk; milk, eggs and lime-water; followed by castor oil and charcoal, or calcined magnesias and animal charcoal. Hydrated sesquioxide of iron has been highly extolled; if tried, give in large doses. If Fowler's solution has been taken, lime-water in milk is very efficacious. The best forms of mucilaginous teas are linseed, slippery elm. They should be freely given, and local stimulation over the stomach, so as to relieve pain and spasm; otherwise opium, conium, or henbane, to combat inflammatory action.

Bismuth, Subnitrate, Nitrate, Carbonate, Oxide; Pearl-Powder; Face-Powder; all Cosmetics: Insidious and most common form of

poisoning among ladies, giving rise to an irrepressible languor and debility. Symptoms and treatment same as the following.

Copper, *Sulphate of Copper, or Blue Vitriol; Acetate of Copper, or Verdigris; Arsenite of Copper; Food cooked in unused vessels, without being scoured; or pickles made green by copper; or tea (gunpowder variety), dried on copper plates; spigots and copper bottoms in boilers of coal-oil cook-stoves*: Cause symptoms of great irritation, and inflammation of the entire alimentary canal, colicky, or griping pain, nausea, vomiting, hiccough, cramp, metallic taste in the mouth, suppression of urine, delirium, death.

Treatment.—Vomiting to be encouraged by warm water and lobelia, milk and mucilaginous drinks. Combat inflammatory symptoms with hot fomentations, enemata of milk; albumen, or white of egg, is the only antidote; hence, raw eggs every little while, followed by milk. The other symptoms are to be treated upon general principles, as to whether they be inflammatory or nervous.

Gold.—*Chloride of Gold*: Symptoms are very much the same as for copper, with the exception that the gold gives a pink stain to the flesh, and patches of that color can be detected about the mouth and inside of the lips.

The salts of gold are decomposed by the sulphate of iron.

Iron.—*Sulphate of Iron, Chloride of Iron*: In poisoning by copperas, or green vitriol and tincture of iron there are all the symptoms of an irritant poison: colicky pains, constant vomiting and purging; severe pain in the throat; pain and fullness about stomach; collapse, as is exhibited in a cold skin, feeble pulse.

Treatment.—Carbonate of soda is a reliable and efficient antidote, which should be freely given, with mucilaginous drinks; and particular symptoms relieved by general treatment.

Lead.—*Sugar of Lead; White Lead; Litharge; Wines sweetened, or made more cooling by lead; water drunk out of wine casks; water in lead pipes, cisterns; food cooked in vessels glazed with lead; painters' operations in the making of White Lead; Oil-Cloth Printers*: Causes general nervous depression and a cachexia with irritation of the alimentary canal; blue line on gums, especially on the delicate nerves of the duodenum, irritating and causing contraction. Apt to be spasm. Nervous symptoms; paralysis, partial or complete. If taken or operated in, violent and obstinate colic, rigidity and retraction of the abdominal muscles; cramps; remission of pain; obstinate constipation; urine diminished; saliva increased; countenance anxious and gloomy. If relief be not promptly obtained, giddiness, debility, torpor, coma, convulsions and death. When it causes paralysis it usually affects the upper extremities.

Treatment.—Sulphate of magnesia and phosphate of soda

are good antidotes for the soluble salts of lead. For the solid forms, a drink or beverage of dilute sulphuric acid in water. In the form of colic, enemata of lobelia, hot applications, anodynes and gentle laxatives, with chloroform to relieve cramp or spasm. In all forms of poisoning, when the urgent symptoms are relieved, iodide of potass in alternation, or with the chlorate of potass, are the only two remedies of any utility. The iodide unites with the lead in the body and eliminates it.

Mercury.—*Corrosive Sublimate; Nitrate of Mercury; White or Red Precipitate; or any Preparation of Mercury:* Causes very violent symptoms of irritant poisoning; harsh, metallic, astringent taste in mouth; burning pain at the pit of stomach; vomiting and purging, frequently bloody matter; tightness, and burning in throat occasionally, so great as to prevent speech; often irritation of the urinary organs, with suppression of urine: countenance usually pale, but in some cases flushed; great tendency to doze, stupor, with profuse salivation; in other cases, convulsions, coma and death.

Treatment.—Encourage vomiting with lobelia and demulcent drinks; white of several eggs promptly given, with milk; repeat; gargles of chlorate of potassa, or borax; meet inflammatory symptoms with opium and other means. Baths of sulphuret of potassium are useful for both lead and mercury. To unite with the mercury, and eliminate it from the body, no remedies excel iodide of potass, in alternation with the chlorate of potassa.

Silver.—*The Nitrate of Silver, or Lunar Caustic:* Causes all the symptoms of a corrosive poison. In all cases, the best remedy is a solution of common salt, which immediately neutralizes and decomposes the caustic, and it has no further activity. Other symptoms to be treated on general principles.

Tin.—*Chloride of Tin; Solution of Tin; Oxide of Tin; Culinary Utensils used for Cooking, especially Fats:* Causes violent irritation of stomach and bowels, with griping and purging. The best remedy is albumen, to be given often and freely, followed by oil, and iodide and chlorate of potassa, as under *Mercury*. Since the introduction of petroleum cook-stoves, and canned food, tin-poisoning is common, especially from the cooking of soups or broths containing fatty matter, which has a great affinity for the tin.

Zinc.—*Oxide of Zinc; White Vitriol; Acetate of Zinc; Chloride of Zinc:* Causes very violent vomiting; astringent taste; burning pain in the stomach and bowels; very pale face; cold extremities; dull, glassy eyes; intermitting pulse. It seldom causes death, owing to the fact that it is a good emetic.

Treatment.—The vomiting is to be relieved by copious draughts of tepid water, with carbonate of soda, which decom-

poses the sulphate of zinc. Milk and albumen act as antidotes, followed by preparations of tannin. Otherwise, general principles are to be observed.

Phosphorus.—*Infusion of the Sticks; Phosphorus-Water; Phosphorus in Fat or Oil; Phosphoric Acid, etc.*: Causes all the symptoms, in even slightly large doses, of acute inflammation of the stomach—vomiting, raw-beef tongue, tenderness, tympanitis, peritonitis, and death. The burning in stomach is intense.

Treatment.—If vomiting is not present, give an emetic; follow with linseed tea or slippery elm infusion, with magnesia in suspension; and repeat. Treat symptoms on general principles.

Glass, Enamel, Pins, and Other Foreign Bodies, are apt to cause irritation of the bowels. White of egg and solid diet.

II.—ORGANIC POISONS.

Vegetable poisons embrace a large and often obscure class, for which there is no universal antidote known; hence, the treatment varies with nature of the substance taken. If possible, the poison should be discharged from the system, either by emetics, stomach-pump, or otherwise. In selecting an antidote, it must be one that does not poison itself, if possible, and admits of being given in large doses without danger. Its action should be quick; capable of combining with the poison, and depriving it of its deleterious properties, irrespective of the gastric juice; and should produce a harmless chemical combination and insoluble compound, and prevent absorption. Purified animal charcoal has the power of combining with all the poisonous principles of animal and vegetable substances, and produces innocent compounds. It has not such a reliable effect in the case of mineral poisons; but as a general antidote for vegetable and animal poisons, it cannot be too highly extolled.

Vegetable Acids.—*Acetic, Citric, Tartaric, Oxalic Acids, and Vinegar*: Cause a sour, acrid taste; burning in throat, increased by pressure, swallowing, coughing; with pain and tenderness over stomach; all the symptoms of gastritis.

For acetic, citric, and tartaric acids, and vinegar, the carbonate of soda, potassa, lime, magnesia, are good antidotes.

For oxalic acid, the carbonate of lime or magnesia can be used.

Oil of Bitter Almonds.—*Laurel-Water*: This is liable to be converted into prussic acid on the stomach.

Ammonia is an antidote; chlorine and mixed oxides of iron, if handy; cold affusion; friction to chest and abdomen; vomiting, if possible, followed by brandy and coffee.

Alochol.—*Brandy, Whisky, Wines, all Spirituous Liquors*: Intoxication, coma, or complete insensibility, with apoplexy, or paralysis of one side; face swollen, of a dark, livid color; the

breathing labored and stertorous, with a peculiar puffing out of the lips; the breath either smells of the liquor or chloroform, which will distinguish it from apoplexy.

Treatment.—A powerful, rousing emetic, with a copious solution of the acetate of ammonia, well diluted. The mixture of lobelia, capsicum, and valerian is the best. If there is no acetate of ammonia around, give carbonate of soda freely; enemata of the ammonia per rectum. Keep patient erect; use the cold and warm douche alternately on head and chest. If there is coldness of extremities, warmth, friction, mustard to extremities, and over heart; electricity, artificial respiration.

Volatile Oil.—*Ether; Chloral; Chloroform; Creosote; Oil of Tar; Oil of Turpentine; Fusel Oil; Oil of Tobacco; Nitrite Amyl.* Cause burning pains in the stomach, vomiting, pungent taste, purging, and griping. The oil of turpentine and tobacco affect the nervous system. The peculiar odor of each oil is manifest on the breath and matters vomited.

Treatment.—Chloroform and ether will require powerful lobelia emetics, with copious drinks of starch-water; creosote is immediately rendered inert by white of egg. There is no general antidote for the other oils. Cases to be managed on general principles.

Irritant Vegetable Poisons.—*Croton Oil; Indian Turnip; Mandrake; Colocynth; Sabina; Poke Root; Castor Oil; Oil of Tansy;* and many others of this class. Here is a class of drugs very common in domestic practice, that never should be administered alone, neither in small nor large doses, as they are irritating poisons, and cause an acrid secretion from the liver. They should always be combined with some other drug to modify their action, as croton oil and castor oil, with glycerine; mandrake, colocynth, with hyoseyamus; sabina, with borax, etc.

If this is not observed, the effects of this class of vegetable poisons will be an acrid, pungent taste, with more or less bitterness; excessive heat, with thirst; great dryness of the mouth and throat, with sense of tightness; retching, and persistent vomiting, which is continued after the stomach is emptied; purging, griping, with twisting pain in both stomach and bowels; pulse at first may be strong, frequent, and regular, but soon becomes weak and intermittent; breathing quick and difficult; pupils dilate, and become insensible to light; cold, clammy sweats, and death.

The same class of remedies, if applied to the skin, cause erythema, vesication, pustules.

Treatment.—If vomiting has taken place by the drug or poison, and efforts are still being made, administer very copious drinks of tepid water, with bicarbonate potassa, or cream of tartar lemonade, warm. If vomiting has not taken place, then let the

patient drink freely of tepid water, with bicarbonate of potassa, and evacuate the bowels with repeated enemata. Afterwards try, first, grain doses of hyoscyamus extract, in trituration with strong coffee, and repeat; if that fail, try solid camphor, with toast-water, and repeat; a piece of camphor, size of pea or bean, in some soft substance, to swallow; or try the hyoscyamus and camphor in alternation; mustard over stomach, bowels, liver, and to extremities, or else friction; try camphor-water and hyoscyamus in enemata. Treatment of other symptoms on general principles.

Narcotic Poisons, and Acro-Narcotic Poisons.—*Aconite*; *Veratrum Viride*; *Belladonna*; *Poison Hemlock*; *Stramonium*; *Digitalis*; *Hyoscyamus*; *Tobacco*; *Nux Vomica* or *Strychnine*; *Opium* or *Morphia*; *Rhus Tox.*, etc.; *Ergot*; *White Hellebore*; *Culabar Bean*: Cause the following effects, if given or taken in poisonous doses: Stupor, numbness, heaviness in the head; desire to vomit, which is slight at first, but afterwards becomes insupportable; a kind of intoxication, or stupid manner, or aspect; pupils either dilated or contracted; delirium, with furious, or otherwise, contortions of body; pain, convulsions, or spasm of limbs, or complete palsy; pulse is variable, quick, intermitting; strong, feeble, or imperceptible; the breathing is hurried, slow, labored, with pauses, anxiety, and dejection; or, if asleep, coma, stertorous breathing, death.

General Treatment for all.—Evacuate the stomach, if possible, by mustard or lobelia, till the full effect is produced. If these two remedies fail, tickle the fauces with a feather. If there is great drowsiness, bordering on insensibility or apoplexy, keep patient in motion, and beat him with willow rods covered with wet cloth; if heat is deficient, warmth, and friction with energy. It is best not to give much drink until the poison is vomited, as they tend to dilute the poison and render it easier of absorption. After the poison has been removed, strong coffee should be given every fifteen minutes, with a few drops of aromatic spirits of ammonia. A little vinegar in alternation is good. Electricity, positive pole to neck, face, and negative pole to the diaphragm, so as to sustain the respiration, if feeble. If there are convulsions, contortions, or spasms, use chloroform by inhalation.

Special Treatment for Narcotics, Acro-Narcotics, Opium, or Morphia.—If the patient is unable to swallow the emetic, enemata belladonna is often successful as an antidote, in from thirty to sixty-drop doses. Tannic acid in simple syrup is said to be useful. Persist with the strong coffee till pupil dilates and skin loses its pallor, and the flagellations with the rods or wet towels. If there is no good coffee handy give alcohol.

Veratrum Viride.—Large doses of tincture of opium every

hour, say from thirty to sixty drops, with animal charcoal between.

Belladonna.—Same as *Opium*. Administer a solution of sulphate of morphia freely, and animal charcoal.

Aconite.—Animal charcoal; castor oil; strong coffee; with aromatic spirits of ammonia; movement; friction; beating with wet towels; enemata, and artificial respiration.

Nux Vomica; Strichnine and Brucia.—Emetics; enemata; olive oil; animal charcoal. Warmth and sweating to be induced; chloral and bromide of potass in immense doses, in camphor water, with movement, and other precautions.

Calabar Bean.—Emetics; animal charcoal, and belladonna.

Digitalis.—Gelseminum; emetics; castor oil; infusions containing tannin, as strong tea, oak bark, strong coffee or brandy.

Nicotine, or Tobacco.—Vinegar in sweetened water, or tannic acid in sweetened water.

Ergot.—Emetic; belladonna and carbonate of soda, freely; animal charcoal.

Petroleum.—Oily and mucilaginous drinks frequently.

Stramonium.—Emetics; morphia and animal charcoal.

Henbane.—Emetics; morphia; castor oil; animal charcoal.

Nitro-Benzole; Analine.—Strong coffee; brandy; ammonia; turpentine; enemata; animal charcoal.

Poisonous Mushrooms; Bologna, and Other Sausages.—Causes nausea, pain, heat in stomach and bowels, with griping, purging; great thirst, faintness, convulsions, dilated pupil and prostration, with cold, clammy sweats.

For which lobelia emetics, and large doses of Epsom salts, to cleanse out bowels, with stimulants and tincture of opium, and animal charcoal.

Decayed meat, putrid flesh, or other agents loaded with bacteria, managed on general principles by emetics, cathartics and animal charcoal, with diffusible stimulants, to overcome prostration.

III.—ANIMAL POISONS.

Poisonous Fish.—*Land Crab, Yellow-Billed Sprat, Gray Snapper, Conger Eel, Bottle Fish, Spanish Mackerel, King Fish*: Causes, if cooked and eaten, uneasiness, pain in stomach, with nausea, vomiting, vertigo, headache, heat in eyes, thirst, and various forms of eruption on the skin, with prostration and death.

Treatment.—An emetic of lobelia, followed with an active cathartic, so as to have frequent evacuations of the bowels. Vinegar and water should be freely drunk after the above remedies have operated, and the body sponged with the same. A solution of chlorate of potassæ is the best antidote to the poison. General treatment as to symptoms present.

Poisonous Serpents.—*Boa, Copperhead, Horned Viper, Viper, Black Viper, Rattlesnake, Water Viper*: Causes sharp pain in the wounded part, which soon extends up the limb to body; great swelling; at first, hard and pale; then reddish, livid, gangrenous. Fainting, convulsions, vomiting, jaundice; pulse small, frequent, irregular; constriction of the chest, causing difficult breathing, prostration, sweats, failure of the intellectual faculties, convulsions or paralysis, death.

Treatment.—Wound treated by ligation, suction, free bleeding, then by applications of muriate ammonia, and starch (grated potatoes,) and internally, brandy and carbonate of ammonia to intoxication.

Spanish Flies.—*Potato Fly*: Causes nauseous odor of the breath, acrid taste; burning heat in throat, stomach and abdomen; frequent vomiting, greenish, coffee grounds, or bloody; copious black stools, with pure blood; very great pain in the stomach; painful and obstinate priapism, with heat in bladder, stranguary, retention of urine, terrible convulsions, delirium, and death.

Treatment.—Encourage vomiting by drinking sweet-oil or glycerine, or sugar and water, or milk, or linseed tea. Same remedies by enemata. Combat symptoms of inflammation of kidneys and bladder. Dissolve camphor in oil, and rub into arms and legs.

Venomous Insects.—*Wasps, Hornets, Bees, Gnats, Gadflies, Mosquitoes, Bugs*: As a general rule the sting of these insects produces local inflammation; in some cases they give rise to sickness and fever.

Muriate of ammonia, in saturated solution, or spirits of harts-horn on a piece of rag, is sufficient to antidote and relieve the burning, tingling in the skin.

Sumach, Ivy, Poisoned Vines, are at once neutralized by the same remedies.

Post-Mortem.—Poison introduced by the bacteria of dead bodies in dissection, through scratches, abrasions, cuts; is best neutralized by thorough washing, and the local application of permanganate of potassa.

Rabies.—See *Hydrophobia*.

Woorara Poison.—Iodine with starch and iodide of potass, neutralize the action of this poison.

Death Causes.—There can be no life maintained without the circulation of arterial blood. If no blood circulate through the arteries, as in rupture of the heart, or in perforation of its septum, the result is death. Death by a stoppage of the circulation of the blood may be of two kinds:

(1.) Death by anæmia, in which there is a want of due sup-

ply of blood to the heart. The anæmia may be due to a loss of blood, or its impoverishment by disease, or drugs.

(2.) Death by asthenia, when there is a failure in the contractile power of the heart. This may arise from disease of the cardiac walls, or valves; or from the arrest of the heart's action; or through the nervous system, as in apoplexy; disease of the medulla oblongata, shock, or certain poisons. When either from anæmia or asthenia, the death is sudden; it is said to be due to syncope, or sudden prostration of strength. Sometimes vital force fails partly from anæmia and partly from asthenia; as in cases of starvation, phthisis.

Death by circulation of venous blood may happen in one of two ways:

(1.) Apnœa, or asphyxia, or suffocation, when access of air to the lungs is stopped; as in drowning, strangulation, laryngeal and lung diseases; tetanus, section of phrenic and intercostal nerves.

(2.) By coma, or deep sleep; in which muscular movements required by respiration, cease, owing to insensibility produced by cerebral disease.

In apnœa there are successively impeded respirations, circulation of venous blood, and insensibility. In coma, the order is reversed: insensibility, cessation of thoracic movements, and stoppage of chemical function of lungs.

RIGOR MORTIS.

Cadaveric rigidity is due to a chemical process—a process of death, characterized by a coagulation of the myosine, and may be considered the death of the muscles. When the coagulation takes place, the acids, which are being constantly formed, and as continuously removed during life, accumulate in the muscle and gradually effect a solution of the myosine, and then the azotized matters undergo decomposition and develop ammonia, which in its turn dissolves the myosine, and thus occasions the disappearance of the rigor.

In this process, when rapid, great heat is often evolved, especially when the rigor is being established; the rigid muscle slightly diminishes in volume. The disease of which the patient died has an influence on the quick appearance of the rigor, its duration, etc.; so has heat and cold.

Following that the body returns to its natural earths or gases, all except the cadaveric alkaloids, which remain as permanent salts, and are not destroyed even by cremation.

The amount of indestructible *cadaveric alkaloids* present in an ordinary sized human being, varies from six to eight grains, depending greatly upon the development of his intellectual capacity or powers.

REMEDIAL AGENTS.

Observe:

When searching for any Prescription or Remedy, always refer to both CONTENTS and INDEX, noting the directions carefully. Copy, verbatim et literatim, word for word and letter for letter, and hand it to the druggist.

The prescriptions are classified under appropriate headings; when no special formula is indicated, only the general head mentioned, as "Alterative," "Tonic," etc., then read them all over and select that or those most suitable to the case. As one prescription is mentioned very many times, this arrangement is designed to prevent repetition.

In the present work we have enumerated a few of our best and most reliable remedies, and given the prescription in plain language, so that it can be understood by the ordinary scholar. The dose that has been laid down, when not otherwise stated, is for an adult male; and the father or mother in prescribing them for the sick must exercise care, a good deal of tact, and great judgment, and attend to age, sex, temperament, nature of disease, climate, etc., etc.

As the operation of drugs is greatly influenced by the form in which they are given, we have almost invariably put them up in trituration, or diluted form, and have them taken in water. The purity of the remedy, and the mode in which it has been prepared originally and by a reliable firm, the time of day at which it is given, the dose, the condition of the stomach, as regards the presence or absence of food, and age of the patient, all must be looked to. The full dose, as we have laid down, is for the adult man, between twenty-five to sixty-five years of age.

Now, a good way to regulate the dose for younger or older persons is as follows: Suppose the dose laid down is thirty grains, or thirty drops, for a standard.

Suppose the patient is under, or about, twenty years of age, the dose should be twenty grains, or drops.

Fourteen years of age, ten grains, or drops.

Seven " " seven and a half grains, or drops.

One to two " " two grains, or drops.

Over sixty-five, the dose should decrease in the same manner. Women, on account of their delicate organization, great sensitiveness, extreme impressibility, should have doses somewhat smaller than males.

If possible, discontinue all drugs during menstruation, pregnancy, lactation, unless it be some simple tonic—unless some special indication exists. There is a good knack in striking the right dose, proper adaptation of the remedy to meet the indications of the disease. In some conditions, as in delirium tremens, epilepsy, puerperal convulsions, we are unable to introduce the remedy into the stomach, and then we use the skin, cellular tissue, rectum. If in the cellular tissue, it should be a pure alkaloid, in solution, in a little smaller doses. This form of medication should never be used on children.

Some patients have a peculiar idiosyncrasy to some drugs; and this in some cases extends, not only to medicines, but to odors and different kinds of food; and when this is the case, the medicine or food should not be given.

No case of disease should be given up; for if it does not admit of cure, it can at least be ameliorated, or its severity mitigated. True, some diseases are incurable, and the patient should not be deceived by any false promises; still, recoveries take place under the most unfavorable circumstances.

Families who possess this work should discard all patent medicines, as they have better prescriptions than any in existence. The most trivial sickness should never be overlooked; let it be attended to at once. Hope and confidence are neither mean nor insignificant remedies; and in what is termed the Expectant, or Nihilistic, system of practice, faith and sugar is all the patient has for his money.

In no case should drugs be prescribed without regulating the character of diet, clothing, and recommending bathing, rest, sleep, ventilation, light, cleanliness, and enforcing the administration of food at stated intervals. No cooking of food near the sick; nor should food, such as milk, beef-tea, be kept in the sick-room.

There should be no crowds of people, or noise, but the greatest quietness and rest. If it is some contagious fever, there should, if possible, be two beds in the apartment—one to be used during

the day, the other at night; bedclothes and body-linen changed frequently. Every precaution should be taken to prevent the dissemination of the diseased germs, by the use of antiseptics in the apartment, such as solutions of permanganate of potassa and sulphate of iron; and by prohibiting egress and ingress of all persons except the nurse or attendants.

For the sake of convenience, we have arranged the various prescriptions under the following heads:

Alimentation,	Enemata,
Acupuncturation,	Fomentations,
Alteratives,	Gargles,
Anæsthetics,	Hypodermic Injections,
Anodynes,	Inhalations,
Antacids,	Inunction,
Antispasmodics,	Liniments and Ointments,
Anaphrodisiacs,	Massage,
Aphrodisiacs,	Mineral Water Baths,
Antiseptics,	Ozonized Remedies,
Arterial Sedatives,	Paraffine Splints,
Astringents,	Pessaries or Pastiles,
Baths,	Plasters,
Caustics,	Poultices,
Cough Remedies,	Preservation of Teeth,
Diaphoretics,	Purgatives,
Diffusible Stimulants,	Reflex Sedatives,
Diuretics,	Suppositories,
Electricity,	Tonics,
Emetics,	Uterine Remedies,
Emmenagogues,	Vermifuge Remedies,
Climate for Invalids.	

Our readers will perceive, after scanning the list of remedies here and in the body of the work, that we almost invariably prescribe the medicinal herbs of the United States, as the best adapted for the cure of our diseases, being superior in their efficacy to the mineral poisons used by a certain class. We have a very exalted opinion of this class of remedies, and have rarely recommended mineral medicines, such as arsenic, antimony, mercury, etc., which, when taken into the system, lurks there for years, and it is doubtful if they are ever eradicated.

The prescriptions are classified, as far as practicable, under the headings to which they belong. Some of them are applicable to numerous diseases, but are inserted to avoid repetition under one head only. The best plan in all cases to find a recipe, is to consult both contents and index.

In the compilation of these prescriptions, especial pains have been taken to economize space as much as possible without

impairing their clearness for ready reference in the family. With this end in view, we name the *combination*, and, after giving the formulæ, enumerate the principal diseases in which it is proper to use it.

ALIMENTATION, OR NOURISHMENT.

Consists in providing a suitable diet for the sick—a form of liquid nutrition; easily digested, rich in blood-forming elements; one that can be given every one or two hours, and that will not require much effort on the part of the stomach, pancreas, bowels, and lymphatics, to be converted speedily into blood. Milk and beef tea or extract are the best.

Milk and Lime-Water.

Good, fresh milk, about a large tumblerful, or eight ounces; lime-water, one teaspoonful; mix. Let patient drink half or more, as indicated, but at regular stated intervals. The addition of the lime-water to the milk is to prevent the casein of the milk from coagulating on the stomach, so as to render it easy of digestion. Five grains of bicarbonate of potassa can be used instead of the teaspoonful of lime-water, with same or even better results. Milk warm from the cow is the best, or it can be warmed or boiled, in cases of diarrhœa, with a handful of cinnamon sticks in it, and then the lime-water or bicarbonate of potassa added as used.

In all cases milk must be kept carefully covered, never exposed to the air, nor kept in the sick room, and above all things, be fresh. *It is unquestionably the best diet for the sick.*

Beef Tea.

Chop one pound of lean beef very fine, like mince-meat; cover with one pint of cold water; place in a close vessel, and boil for nearly an hour; then take off the scum, cool, and strain; season to the taste. *Very nourishing and palatable drink, and quickly made.*

Extract of Beef.

Take one pound of lean beef, free from fat, skin, bone; chop it up fine, as mince-meat; just barely cover it with water; then place it in an hermetically sealed glass jar; put a saucer in the bottom of a pot, then place in it the jar with the meat; fill with water, so that the water will reach half way up the jar; then put the pot on the fire, and let it boil four or five hours, or even longer; when nearly cold, strain through a coarse sieve; season with salt to suit the taste. There should be about six or seven ounces of extract. *Extremely efficacious in great debility, hæmorrhages, exhaustion, fevers.*

Instantaneous Beef Tea.

Take a pound of lean beef, chopped very fine; then take a pint of water, rendered sour or tart with muriatic acid, palatable for drinking, and add it to the meat, in a china bowl; stir repeatedly, or crush it well; pour through a hair sieve, and back again into the bowl, until all the fibrin is taken out of the meat. It makes a most acceptable drink, highly nutritious, and is very suitable when in great haste, and is, perhaps, the best method of extracting the blood-forming elements of the meat. Season, as usual, to the taste.

Raw-Meat Juice.

Chop lean beef fine as mince-meat; pound it in a mortar, and add water to an amount not exceeding the volume of the meat; then mix and pound thoroughly, and latterly strain off by compression through muslin, or fine linen, or a sieve; season to suit. *Juice of raw meat is of great utility in cholera infantum, wasting, or when the stomach has lost its tone.*

Chicken Extract.

Cut a chicken into small pieces, chop bones and also gizzard; put the whole into a fruit-jar, and cover with cold water; then hermetically seal it up, so that it will be tight; set the jar in a pot, with a saucer at the bottom; fill it up with water till it reaches half way up; then place on fire and boil for three or four hours; then strain the contents of the fruit-jar; skim carefully off all fat; season it slightly with salt, pepper, mace, or loaf-sugar and lemon, according to the condition of the patient for whom it is intended. *Excellent for a change, but must not supersede the beef extracts.*

Mutton Broth.

Take one pound and a half of lean mutton-chops off the leg; broil them carefully and well, but do not burn them; then put them into one quart of water; season with a little salt, some parsley, mace; boil slowly for four hours; skim off any fat. Vegetables, barley, rice can be added, if desired, or the broth can be thickened by grating the kernel of boiled flour, as much as is necessary to render it very agreeable; season as desired.

Mutton Soup, Beef Tea, Extracts, etc.

Take of mutton or beef, one pound and a half; cold water, one quart; a little salt, some parsley, and two ounces of rice. Simmer for four hours; boil for five minutes; strain and serve.

Another good way to get good beef tea is to mince a pound of meat very fine; put it into a common earthen tea-pot (not tin or metal), and add one pint and a half of cold water; put

on the lid, and set the pot on the stove or range over night, close enough so as to give about a pint of beef-tea.

Beef tea, broths and soups, made from preserved meats are not to be used for the sick in their homes. They may answer well on board of ship, and in out of the way stations, and may be very palatable to the taste, but they are not nutritious, and can never supersede fresh meat. It is unnecessary here to speak of their deleterious compounds, their composition being mainly gelatine, upon which human tissues starve.

Milk-Food.

The milk-food of the Anglo-Swiss condensed milk company, of Cham, Switzerland, is scientifically, theoretically, and practically, the best nourishment for children, well or ill—it cannot be surpassed, as it satisfies all demands. It is made of the best milk and wheaten phosphates, with a little cane sugar and a normal amount of saline matter. The preparation is of immense value for nutrition in general, and most appropriate for invalids and children.

To each teaspoonful of milk-food add four or five ounces of water. Mix the powder first to a smooth paste with a little of the water; then add the rest, and boil for five minutes, stirring it constantly, after which it is ready for use. Use fresh, neither cold nor hot, and not too much at a time. Keep the utensils scrupulously clean. *It excels in nutritive properties; pleasant to taste, and highly blood-forming.*

Boiled Flour.

For the purpose of thickening beef tea, or extract; mutton, or chicken broth, the following is excellent, as it contains chiefly the wheaten phosphates. Take a pound of flour; tie it up in a towel, and dip it a few times into cold water, so as to dredge the outside into a crust. Then drop it into a pot of boiling water, and let it boil actively for six or more hours. Remove it from the water, and allow it to cool; then trim off the outside doughy rind, and save the hard central portion, or kernel, which is to be grated in quantities desired for thickening. *Highly nutritious.*

Arrowroot.

Mix three tablespoonfuls of arrowroot in a teacupful of water until quite smooth; cover it, and let it stand a quarter of an hour: meantime bring to a boiling point half a pint of milk, and while boiling sweeten with sugar, and add the arrowroot, and let it boil nearly five minutes, keeping constantly stirring. Remove and flavor with lemon essence and grated nutmeg, to the taste. It may be made entirely of milk!

Tapioca.

Soak a sufficient quantity over night in water ; then boil it gently, either in milk or water, till quite clear, and add lemon-juice, or essence ; wine, sugar, and cinnamon, as desired.

Brandy and Egg Mixture.

Take the whites and yolks of four eggs ; beat them up in four ounces of water. After well beaten into a homogenous mass, add three ounces of brandy, with some sugar and nutmeg to suit. In cases of great debility, or prostration, *it can be given frequently, to keep up the strength, in doses of two or three tablespoonfuls.*

Take a tablespoonful of fresh cream, and beat it up thoroughly with a new laid egg ; add to this some white sugar and a tablespoonful of brandy. Give as often as indicated.

Gruel.

Take two or three tablespoonfuls of oatmeal ; add to it four of cold water, and mix them thoroughly together. Then add a pint of strong beef tea, boiling, or of milk. Boil all together for five minutes ; keep constantly stirred to prevent burning ; then strain through a sieve. *An excellent, simple restorative during convalescence from acute disease.*

Or the three tablespoonfuls of oatmeal can be added to one pint of boiling water, and boiled twenty minutes, and one tablespoonful of fresh butter, one of sugar, one of cream of tartar added, with salt and nutmeg to suit. *Excellent, nutritious drink.*

Rennet Whey.

Take a piece of dried rennet, about two inches square ; chip up into small pieces, put in a tea-cup half full of water, and let stand all night, and in the morning stir this rennet-water into a quart of warm milk. Cover it and set it near the fire, till a firm curd is formed. Pour off the whey, and use as a drink, which is cooling, palatable and appetizing. *Of great utility when the stomach has lost its tone.*

Lemonade.

Take four ounces of lemon-juice ; four ounces of sugar ; half an ounce of lemon-peel ; and three pints of boiling water. Let them stand till cold. *In fevers a little sweet spirits of nitre may be added.*

Toast-Water.

Toast several slices of bread (not burnt) ; place them in a pitcher, and cover with boiling water and cool strain. Cracker-water in same manner.

Rice-Water ; Barley-Water.

Take two ounces of rice, or barley ; add to one or two quarts

of water. Boil slowly till it is reduced nearly a half. Season to suit, with salt, nutmeg, lemon-peel.

Wine Whey.

To half a pint of boiling milk add two tablespoonfuls of sherry wine. Cover and let it cool, and strain through a piece of muslin. Sweeten with sugar.

Iceland Moss ; Irish Moss.

Take an ounce of each ; boil slowly in a pint and a half of milk, for three quarters of an hour ; strain through muslin ; add three ounces of fine white sugar, or more, if desired. *Excellent in cough. Taking a little now and again.*

Demulcent Drinks

Are made of linseed boiled in water ; lemon and sugar added to suit, and strained ; gum-arabic in boiled water ; slippery elm water ; infusion of marshmallow ; isinglass, boiled in milk with half a dozen of crushed almonds ; infusion of tamarinds.

Solid Food.

As soon as recovery takes place, solid food should be recommended, such as buttered toast, biscuit, broiled tenderloin, or chops, broiled chicken, roasted potatoes, vegetables, and ripe fruit ; drinking at meals to be avoided. Gradually the solid diet to be more varied, by the addition of soft boiled eggs, boiled white-fish. Tea and coffee are of little account ; still, if the patient desires them, they need not be withheld.

If it is desirable to administer ale or porter, let them be taken with a good broiled beef-steak ; and so with wine.

Diastase, Pepsin, and Pancreatine.

The starchy food is digested in the mouth by the diastase of the saliva ; and if there is no saliva, it passes into the stomach, whose juices never digest starch. By and by it moves on into the duodenum, where it is digested by the secretion from the pancreas ; if there is no pancreatic secretion, it will pass along the bowels undigested, and is evacuated.

Patients with feeble digestive power make a slow recovery, unless the digestive juices are added to aid the elaboration of the food. Malt extracts supply the place of diastase in the saliva ; pepsin the gastric juices, and pancreatine for the natural secretion from the pancreas to emulsify the fatty constituents, and act upon the undigested starch. Disease, or obstruction of the pancreas, is rare ; still, it is occasionally met with in degeneration of the gland, when free fat is found in the stools, and its place can be readily supplied artificially until the difficulty is removed.

There are several preparations of pancreatine in the market,

all tolerably good, and no one in particular can be mentioned as the best.

The Use of Malt Extracts.

As the preparations of malt are now very much used and recommended by the profession, the public should know what they are, and what purposes they serve.

Malt is barley which has been made to germinate by moisture and warmth, and afterwards dried, by which the vitality of the seed has been destroyed. By this process, part of the protein matter of the barley is converted into *diastase*. This only constitutes one five-hundredth part of the malt, but serves to convert about forty per cent. of the starch of the seed into grape-sugar, or gum—*dextrine*. The seed of barley contains, then, a quantity of diastase, which, in the act of germination, is converted into dextrine and sugar, for the nutrition of the embryo plant until it can feed itself. The parent seed, or grain, stores up food for its offspring in the form of insoluble starch; and along with it a ferment, which transforms insoluble starch into soluble sugar, for the use of the plant in the act of germination. How the maltster found it out is not known. When the physiological chemist found that starch was transformed into dextrine and sugar by diastase in human saliva, the step forward was an easy one.

The starch of our food is converted by the ferment of our saliva into sugar, or a soluble matter half-way between starch and sugar, known as *dextrine*. Starch, as starch, is insoluble, and requires to be rendered soluble in the digestive act, in order that it may pass from the alimentary canal into the blood. The ferment of the saliva is known as *diastase*. By its action a great portion of the starch of our food is digested, or made soluble. Whatever starch is not digested by the salivary diastase, undergoes no change in the stomach, but passes on to the duodenum, and is there acted on by the diastase of the pancreas. Diastase is either salivary or pancreatic, and is only active in an alkaline medium; invariably killed by an acid. Consequently the digestive act of the stomach, when there is a tidal current of all the acids of the body to that organ, it does not affect the digestion of starch. When the salivary diastase is brought into contact with starch in the mouth, the transformation commences. The starch so rendered soluble, easily passes through the stomach, and does not impede or interfere with digestion in the stomach. But when the salivary diastase is imperfect, then a quantity of undigested starch harasses, and hampers, or retards the digestive act in the stomach. In such cases it is desirable to improve the digestion of starch by this artificial agent—extract of malt.

To utilize the digestive ferment of the embryo plant for the necessities of the human family, is a step forward in the treatment of defective nutrition. But certain cautions must be observed in such use of vegetable diastase, else it is rendered inoperative and useless; it must be used to supplant or supplement the natural diastase of the saliva. When cooked starch, as farina, arrowroot, tapioca, rice, is eaten, salivary diastase acts quickly upon it and liquefies it. This is accomplished when the food is in the mouth, if the patient is in good health, and while it is passing down into the stomach, before the contents of the stomach becomes acid. When a hearty meal is swallowed, it takes a little while for the gastric juice to permeate the mass, and a little longer time for all the acids of the body to aggregate to the stomach, consequently the acids of the contents of the stomach for a short time are quite feeble; consequently nature points out the time to take malt extracts—either with the starchy food before a meal, or immediately after; never when digestion is at its height, for then the stomach is intensely acid, and the diastase would at once be killed. So the rule of giving farinaceous food after a meal, as is usually done, is essentially wrong; it should be taken before a meal, for the first instead of the last part. This rule should be rigorously adopted in all conditions of debility in children, dyspeptics, and invalids.

Infants should never be fed upon starchy food, because their salivary digestion of starch is not developed, or but imperfectly, till they reach over a year old, some later; if hand-fed, malt extract must be used.

In order, therefore, to secure all the advantages that can possibly be derived from malt extracts, it is necessary to follow nature's processes, or to traverse them. Consequently malt extracts should be taken with farinaceous food, and before meals, or immediately after such food; never when the stomach is full. It should be added to the farinaceous mass, with or without milk. It should never be added to anything hot, because diastase is killed at a temperature of 147° F.; consequently when the food has become so cool that it can be sipped, the malt extract should be added. It should be either mixed throughout the farinaceous mass, or eaten with it, according to the nature of the food; or it can be swallowed after the starchy mass, before the stomach has time to become acid. Such is the proper way to use malt extracts to obtain their full benefit.

While there are many preparations of malt in the market, manufactured from mixtures of various cereals, such as wheat, oats, rye, etc., claimed to be equal to the true extract of malt, we regard this assertion as far from being established, as there is no grain capable of producing true malt ingredients but

barley; and the farther north it has grown, as in Canada, Ohio, and Michigan, the better

Independent of an aid to natural digestion, or an artificial digester of starch, malt extracts do possess some little value in the way of general nutrition, as they contain the phosphate of the grain, and a certain portion of starch transformed into sugar or dextrine; so that they can be added to milk for invalids and dyspeptics, or for young children. Let it be ever borne in mind that diastase does not exist in the saliva of a white infant—not in sufficient abundance to digest starch—till about a year old. Until this period it is worse than useless to feed farinaceous food of any kind.

As a beverage, malt extracts may be added to drinks, such as milk and water, and thus form a sustaining drink in hot weather. *Malt extracts are of great value in wasting diseases, when both their nutritive and digestive elements come into use, in such affections as phthisis, tabes mesenterica, want of nutrition from exhausting brain-work, debility, and indigestion;* that is, if the article is good. In their purchase, it is well to be very guarded, as no class of remedials have been so scandalously adulterated, and none in which such vile imitations and worthless articles substituted.

Pepsin.

The active principle of gastric juice can be obtained from the stomachs of many animals; but, as the stomach of the pig and gizzard of the chicken have the strongest digestive property, they are very generally preferred to all others; they are also easily procured, and are very cheap. They may be prepared in a great variety of ways, as by cleaning and drying, and adding to wine and other substances. But for home purposes, and a most superior article, the following is the best mode of preparation: Take the stomach, cleaned roughly at first, then cut it up into pieces, and dissect off the mucous membrane or coat, with a little care, and then spread it on a flat board; then take a sponge and a little water, and wipe off, and remove all extraneous matter; then with a piece of ivory or hard wood, made like a knife, the surface is scraped hard, so that the microscopical glands be squeezed and their contents pressed out. The viscid mucus thus obtained contains the pure gastric juice, with much epithelium from the glands and surface of the mucous membrane. Then spread this on a piece of glass, so as to form a thin layer, and dry it at a temperature less than 100° F. The heat must not exceed 100°, because if it does, it is destroyed. When perfectly dry, the mucus is to be scraped from the glass and put into a mortar, and reduced to a fine powder, and then transferred to a well-stoppered bottle. This powder excels all

others in digestive properties. Take of this powder, either before meals or after, from two to five grains, and dissolve it in a little water, to which add from three to five drops of muriatic acid; mix, and take at once. This powder undergoes no change, no decomposition, if kept in a stoppered bottle and dry, and contains pure pepsin—the active principle of the gastric juice unaltered—and is better than anything else in the market.

Ther-ingluvin, said to be prepared from the chicken's gizzard, can be made in the same way, and same dose. That which is advertised by the so-called manufacturing druggists is simply the gizzard, dried at a temperature of 100° F., and ground into a powder; so that to obtain a result, it is necessary to administer in twenty or thirty-grain doses.

Our pepsin, as above described, can be administered without the acid, if desired, and triturated with sugar of milk instead; but the acid is the best form.

It is useful in all diseases of malnutrition, malassimilation, emaciation; in all forms of vomiting, diarrhœa, indigestion; invaluable in diphtheria, typhoid; excellent in debility of young children or aged adults; arrests cholera infantum, aphthæ, scarlet fever, small-pox, sea-sickness.

Our best chemists have asserted, and all are agreed on the point, that the dried mucus of the pig's stomach is the most active, and twenty-five times stronger than all other forms, or from other animals.

ACUPUNCTURATION.

This method of treatment consists in the use of an instrument in which are inserted fine needles, their points outwards, ranging from a dozen to fifty to the square inch. They are either arranged with a spring or otherwise; but their design is to prick the skin, and thus stimulate the nerves. Some enthusiasts go further in applying it violently, so as to cause deep punctures, and then to rub over the part medicinal agents, according to the nature of the disease. Suppose it was a fever, or inflammation, it would be applied over a part; then veratrum viride, aconite, rubbed up in oil of mustard, would be used, or liniment of croton oil. Suppose an action of the liver was desired, the instrument would be applied over that gland, and then extract of mandrake. It is a clumsy and severe method, and is best adapted for chronic inflammation of spinal chord, such as exists in spinal irritation and hysteria. Here, applied on both sides of the spinal column, away from bony projections, it operates like a charm. After it is applied, oil of mustard is very efficacious in keeping up the stimulation. It may be repeated as soon as all indications of soreness have subsided, again and again. In its use be careful not to prick the periosteum

over any bony point. It should never penetrate deep; its best effects are to be obtained by stimulating the surface. It must never be used near a joint, nor on children. It has a wide range of action, but should be limited to anæmic conditions of the cord, for which it is so serviceable. If remedies are used with it, let them be simple ones, never using any powerful drugs.

The reflex effect, if performed gently, is to strengthen the nerve-centres.

ALTERATIVES.

There are two processes going on in the human body at one and the same time: construction and destruction. In healthy adults they are about equal; but if alteratives were given they would create an excess of waste; they would produce a change; break down tissue. They are useful in the destruction of living poisons, and in their subsequent elimination from the body; as they all stimulate the skin, kidneys, and bowels.

Standard Vegetable Alteratives.

Compound syrups of frostwort, yellow dock, caulophyllum, stillingia, sarsaparilla, poke-root, saxifragica, are excellent vegetable alteratives. Or, what is cheaper, are, infusions of sassafras, yellow dock, corydalis, blue flag, agrimony, bitter-sweet, burdock, tag alder, frostwort, sheep laurel, unicorn. These infusions can all be preserved in the hottest weather by dissolving from a half to a teaspoonful of chloroform in a tablespoonful of alcohol, and mixing; then adding to a pint infusion and bottling up, keeping it corked. Iodide of potassa can be added, as they are taken to the amount of five grains three times a day. We never use mercury as a blood purifier.

Stillingia and Iodide of Potassium.

Take four ounces of the compound syrup of stillingia; one ounce of the tincture of kalmia; two drachms of iodide of potass; three of the bicarbonate of potass: mix. One teaspoonful three times a day before meals. *Invaluable in syphilis, tubercle, cancer, and all blood diseases; also in poisoning by mercury, lead, tin, bismuth—all blood poisons.*

Phytolacca and Iodide of Potass.

Take six ounces of the compound syrup of phytolacca, or poke root; three drachms of iodide of potass; and half an ounce of bicarbonate of potass: mix. Dose, one teaspoonful thrice daily, before meals. *Excellent in syphilis, cancer and all diseases of the blood, and its efficacy is quadrupled if ozonized.*

Podophyllum, and Other Vegetable Agents.

Take ten grains of the resin of podophyllum; twenty grains of the resin of golden seal; twenty of the extract of gentian;

twenty of the extract of cinchona ; and sixty grains of extract of conium. Make forty pills ; one to be taken three times a day. *Very valuable in all blood diseases, especially syphilis and cancer.*

Iodine.

In the body of the work we have recommended iodine pure, combined with starch, as a valuable alterative (see *Lupus*) ; tincture of iodine with sweet milk, in cases of tubercular disease in children ; and iodide of potassium and sodium in general disease of the blood, as destroyers of disease-germs. There are other preparations, as iodide of iron, that are not of much utility.

Iodide of Lime.

Is a most excellent form in uterine diseases. The syrup is the best form for administration ; its effects often surpass the iodide of potassium. A teaspoonful thrice daily.

Iodide of Potass and Iodide of Soda

Are best administered in the alterative syrups, but they can be added to infusions, or simple water. The average dose is five to ten grains, thrice daily. *Good blood purifiers and germicides.*

Chloride of Lime.

Take half an ounce of chloride of lime ; two ounces of tincture of orange-peel, and one of water. Mix well, and filter and strain carefully. Dose, a teaspoonful three times daily in water. *Very efficient alterative in enlargement of the lymphatics.*

Colchicum.

Take of the wine of the root of colchicum one ounce ; fifteen-drops doses every three hours, until it acts upon the bowels ; then in small doses—three to five drops—so as to keep up its action. *Often of great efficacy in beer drinkers, to eliminate uræa.*

Add twenty grains of sulphate quinine to the ounce, and take in same doses. *Valuable in gout.*

Benzoic Acid.

Take a drachm of benzoic acid ; add glycerine in sufficient quantity to make a mass ; then divide into twenty pills ; three, thrice daily. *Good in jaundice, from suppressed action of the liver ; and in incontinence of urine.*

Chlorate Potass.

Put two drachms of chlorate of potassa in four ounces of water, and add to a pint of lemonade ; a wine-glassful every three hours, *in blood-poisoning.*

Anti-Rheumatic Alterative.

Take four ounces of the compound syrup of yellow dock ;

one ounce of the wine of colchicum; three drachms of the iodide of potass; two of bicarbonate of potassa; and half an ounce of tincture of black snake-root; mix. Dose, a teaspoonful every three hours. *Very valuable in chronic rheumatism.*

Sulphur.

Take, say one hundred grains of sulphur; add to it confection of roses, sufficient quantity to make a mass, which divide into forty pills. Dose, from three to four, morning and night. *Of great utility in blood diseases and piles.*

Blood-Maker and Purifier.

Add one-half ounce of sulphate of manganese to one pint of water. This is superior to iron as a tonic, and an *excellent blood-purifier*. Dose, a wine-glassful three times a day.

Alterative Syrup.

Mix two ounces of tincture of myrrh; two ounces of tincture of lobelia; half ounce of tincture of capsicum in half pound of molasses. A teaspoonful three times a day. *A very superior alterative in chronic disease.*

Alterative Pill.

Take two drachms of pulverized green lobelia; the same of mandrake, blue flag, bloodroot, cayenne pepper, gum-guaiacum; one drachm of oil of peppermint; extract of dandelion to make into three-grain pills. The amount of dandelion present should be about 6 drachms. If mass is too dry, add simple syrup. It is designed to make four hundred pills, of which two or three should be taken three times a day. *Valuable in liver, skin, tubercular, and syphilitic diseases.*

Alterative for Rheumatism.

Macerate for two weeks one ounce of bitter-sweet, half an ounce of colchicum seed, and half an ounce of black snake-root; put the whole into a pint of rye whisky. A tablespoonful three times a day.

Gum-Guaiacum.

Take one ounce of gum-guaiacum; two drachms of saltpetre; and two drachms of salicylic acid; add the whole to one quart of good old whisky. Dose, one tablespoonful every three hours. *Very useful in rheumatism.*

Tincture of Sulphur.

Take a tablespoonful of sulphur, and put it in a two ounce bottle, and cover with alcohol at 95; let it steep two weeks. Dose, ten to thirty drops three or four times a day. *Excellent in skin-diseases, piles, and whenever an alterative is indicated.*

ANÆSTHETICS.

Anæsthetics are a class of agents that are used by inhalation to blunt the sensibilities of the patient to pain, and thus prevent shocks, and obviate, or ward off to a very great extent, surgical fever, in all great operations. There are a great number of agents of this class; but three, viz., nitrous oxide gas, ether, and chloroform, are what may be termed safe and reliable.

Nitrous oxide gas is used solely for very short operations, as the opening of abscesses, making incisions, and extracting teeth—where anything can be done in a few seconds; for a prolonged use of the anæsthetic is dangerous, and it should never be given more than once on one day, and not for several days afterwards. It is useless in operations of any magnitude.

Ether is a good anæsthetic, from six or seven years of age up to sixty, because of its great safety, and the fact that it increases the heart's action.

Chloroform is best for children or elderly persons whose hearts are in good condition; but it must be watched, as it decreases the action of the heart.

The inhalation of ether by aged persons excites immense activity and congestion of the bronchial glands, so that it is very apt to prove fatal. It has the same effect in children, although they, as a rule, take any anæsthetic well.

The process of anæsthesia may be divided into three stages: the first being that of cerebral excitement, or loss of consciousness; the second, accompanied by loss of sensibility; and the third, by loss of motion. Beyond this it is unnecessary to go; it is the final stage—total paralysis of the nerve-centres. Generally speaking, the second stage is sufficient for most operations.

Preparations for Administering Anæsthetics.

May be divided into ordinary and special preparations.

The ordinary preparations consist in seeing that no meal is taken for four or six hours previous to the anæsthetic. The patient is usually in a high state of nervous excitement, and the function of digestion is retarded; and it is even better to omit the meal altogether, so as to avoid the sickness produced by the anæsthetic.

When food is in the stomach, patients are longer in getting under the influence of the anæsthetic; but as soon as vomiting takes place, they speedily become insensible. Sickness, in the true sense of the term, or the bringing up of the contents of the stomach, seldom occurs when patients have been properly prepared. The special preparations are to be observed if the patient is feeble, or affected with some disease, or anæmic. Great caution must be observed, and perhaps tonics and nutritious diet should be resorted to for some days or weeks before

the anæsthetic is given. If nitrous oxide gas or ether is to be given, do not let the patient touch alcohol or brandy in any form, as it introduces a factor in the case which is not desirable, preventing the action of the anæsthetic altogether, or causing the patient to become wild and uncontrollable. If chloroform is to be given, brandy and water may be given before to stiffen up the action of the heart, or, what is better, fifteen grains of chloral hydrate, in syrup of orange-peel, about an hour before. Bowels and bladder should both be evacuated. Examine the chest, lungs, and heart; see that there is no inflammation of the air-cells, or bronchial tubes, or cardiac disease, and no pregnancy. Pure chloroform alone, when there is lung irritation; when the heart's action is feeble, ether. The patient, having been prepared, should, if for gas, be placed in the dental chair, in the usual position for extraction; if for any other operation, upon his back on a table, with the head slightly raised, and all constriction of neck-ties, or stays, or bands, or tight-fitting garments, removed from chest and abdomen. Artificial teeth, if worn, should be removed, or any other substance, from the mouth. When administering any anæsthetic, the first inhalations should be freely diluted with air, and the patient caused to take deep inspirations, so as to get gradually under the influence; for larger quantities, suddenly placed over the patient's mouth, occasion gasping and struggling for breath.

It is to be borne in mind that nitrous oxide gas produces, in a large number of cases, a livid or purple appearance of skin, of face, and neck; ether, congestion or redness; chloroform, a paleness or pallor. Ether, in its administration and evaporation, produces much irritation of the bronchi, buccal, and respiratory glands; consequently the secretion of the respiratory tract is greatly increased, flows about in all directions, about the fauces and down into the stomach, whence sooner or later it must be ejected. If the patient's head be inclined to one side, so that the saliva can partially flow away by the angle of the mouth, this is lessened.

To know when the patient is sufficiently under the influence of any anæsthetic, touch the conjunctival surface with the tip of the finger, and if no reflex action takes place, as is shown by the contraction of the orbicularis palpebrarum muscle, a sufficient degree of insensibility has been produced.

In a large number of cases it is not necessary to have profound anæsthesia. When the patient is fully under it, disturb him as little as possible. The skin, of all textures, is abundantly supplied with sentient nerves, and is the most sensitive part of the body, so that the first incision and the sewing up of the wound are more painful than the cutting of the muscle or the sawing of the bone.

One person should administer the anæsthetic, and never leave his post, nor think nor do anything else. His business should be to give the anæsthetic, and that alone, and watch the breathing and pulse. His own breath should hang on the breathing of the patient, so that he cannot breathe himself till his patient breathes. With ether there may be a slight spasm, respiration may stop; a tap on chest, or rotating the head slightly, will cause it to resume. If the inspiration is difficult, go slow; remove mucus from fauces with fingers, and pull the tongue forward.

Purity of the Anæsthetics.

Nitrous oxide gas is best prepared from the fumes of nitrate of ammonia, boiling gently. The gas so evolved should run into a wash-bottle of water, to cool, then into another, with water in which a stick of caustic potassa has been dissolved, to destroy any fumes of nitric acid in the gas; and then allow it to run through a third wash-bottle, to still further cleanse; from this it should run into the tank. It should never be used warm, as it produces asphyxia. It should not be breathed from the tank, as one patient may breathe another's respired gas, but from a rubber bag of sufficient capacity to give the result.

Ether and chloroform should be pure, and dropped upon a sponge, or small towel, inserted into a newspaper in the shape of a cone, which is placed over mouth and nose. Begin gently, letting the patient breathe air. Stertorous breathing is a sign the patient is over—that the operation may begin; stertorous breathing is an indication that the patient is all right; but hold up the anæsthetic, and watch the breathing well.

Chloroform should be kept covered from air and light, and before using, its purity should be tested, as follows: put equal volumes of chloroform and colorless concentrated sulphuric acid in a stoppered bottle, and shake well; if pure, there should be no tinge, or but a very slight one, imparted to the acid after standing twelve hours; neither should there be any sensible heat by the mixing.

Chloroform, as it evaporates from bibulous paper, should give but little foreign odor, and that only as the last portion is passing off from the paper; and the paper should be left colorless.

No anæsthetic is absolutely safe, so that they never should be administered unless absolutely necessary. They should, when given, be administered by an old, experienced physician, who understands their action, and all emergencies provided for. It should never be prolonged more than is really needed.

Prolonged Anæsthesia.

Once the patient is under the nitrous oxide gas, its action

can be prolonged by causing him to inhale either chloroform or ether for a few minutes.

A mixture of alcohol, one part; chloroform, two parts; ether, three parts: mix; shake well. Is most excellent for profound muscular relaxation, and when we desire anæsthesia prolonged. It is invaluable in fractures, laxations, hernia, spasm, and other conditions requiring complete relaxation. The same could be preceded by a dose of chloral hydrate, or followed by a hypodermic injection of a quarter of a grain of sulphate of morphia in solution. This is only necessary in long, tedious operations.

Maintained Anæsthesia.

Is best performed as follows: When we are desirous of prolonging the action of chloroform, and using little of it in a long, tedious operation, begin with the administration of the chloroform in the usual manner, say ten drops on a towel in the cone of a newspaper, then another ten and another; then, just as you are dropping the third ten, inject under the skin of the deltoid, on the shoulder, either a quarter or a third of a grain of sulphate of morphia in solution; continue the chloroform till the cornea becomes insensible to the light. This gives us complete and prolonged anæsthesia, with very little chloroform, free from all risks; and with twenty or thirty drops it can be maintained for over half an hour, without the least unpleasantness or possible danger.

The condition of the patient and the character of the operation to be performed will guide us to the mode of administration.

The administration of anæsthetics in eye operations requires nice adaptation. In the removal of cataract, to avoid coughing, struggling, at the critical moment of extraction of the lens, the alcohol, ether, and chloroform mixture should be preferred, and so on with other forms.

Ether is apt to cause a failure in the respiration, whereas chloroform causes a failure in the pulse.

When the operation is completed, and the anæsthetic action not further needed, throw up the windows for fresh air; beat the hands; sprinkle cold water on the face; use friction; shake gently, rouse up; and as soon as able to walk, long, deep inspirations in the open air. A little aromatic spirits of ammonia or brandy may be given. Wash face and hands in cold water.

Nitrous oxide gas, ether and chloroform, are, upon the whole, safe and reliable anæsthetics, and the new anæsthetics have not superseded them; and it is not well to abandon them for new remedies that are even still more dangerous. But, although we deem them upon the whole, safe, great discrimination and care with proper precautions, are necessary in their administration.

In long anæsthesia cover patient well up, so as to maintain the natural heat. In cases of threatened asphyxia, never trust solely to pushing the lower jaw forward out of its socket, but forcibly drag the tongue out and forwards by the forceps. Artificial respiration must be immediately commenced and carried on until all hopes of recovery have ceased. If air enters the lungs it can be heard, or its moisture can be seen on a mirror if held over mouth.

Besides these means, friction and artificial heat to feet and legs; cloths, taken from boiling water, placed over the region of the heart; enemata of turpentine into the rectum, or a piece of ice in rectum and vagina.

Hot water over the heart, even to instantaneous vesication, will often restore the heart's action when it has ceased to beat. This should never be overlooked, and should be always in readiness. The medicinal agent that seems to promise most as an antidote to chloroform and ether poisoning, is the nitrite of amyl. Physiological experiments have developed the antagonism between the effects of the nitrite of amyl and chloroform. While chloroform repairs reflex excitability and produces contraction of the cerebral vessels, nitrite restores this excitability and causes their dilation; into the enlarged vessels the blood freely enters, and a rapid circulation follows. The merits and demerits of nitrous oxide, chloroform, and ether, may be briefly expressed thus:

The advantages of nitrous oxide are its safety, and in that it can be given under all conditions except pregnancy.

Advantages of Chloroform.—It is agreeable to breathe, rapid in its action in producing complete insensibility; no laryngeal nor bronchial irritation; does not readily cause vomiting; and its influence is easily maintained.

Its great disadvantages are, that it is liable to produce cardiac syncope, and thus stop the movements of the heart; besides, it often causes paralysis of the respiratory nerve-centres, and thus arrests the action of the respiratory muscles.

Advantages of Ether.—Some think it safer than chloroform, because it does not arrest the circulation, nor kill by cardiac syncope.

Its disadvantages are, that it is unpleasant to take; requires a long time to effect unconsciousness; requires a great quantity; causes restless excitement; most excessive bronchial secretion; gives rise to unpleasant taste in the mouth for several days. The advantages of the mixture of alcohol, chloroform and ether are, that it unites the advantages of both, and the disadvantages are reduced to a cypher.

Local Anæsthesia.—This consists in freezing the part by a spray of sulphuric ether, by means of an atomizer.

It is a valuable mode of procedure for the freezing of gums for the painless extraction of teeth; for the removal of fibroid, fatty, or sebaceous tumors, if not too large, or deep-seated; also valuable for various minor operations.

ANODYNES.

Medicines that increase the vital functions of the nervous system; if not brain-food in themselves, have the property of causing the nervous system to pick up more pabulum from the blood. Useful in all diseases, especially when the nervous system is shattered or exhausted; sleeplessness; nerve-exhaustion; overwork; physical and mental debility, or pain; and in disease generally.

Opium.

Take ten grains of pulverized opium; thirty grains of Dover's powder; and thirty grains of pulverized asclepias: mix. Make twenty powders. One every hour, or two, three, four, or more hours apart, as indicated, in warm tea or gruel. *A good form in which to give opium in pleurisy, gastritis, peritonitis, metritis.* Camphor can be added if desired.

Morphia.

Take four ounces of cinnamon-water; four grains of sulphate of morphia; fifteen grains of bicarbonate of potassa: mix. *A teaspoonful every hour, or two, three, or four hours, as indicated, for sleep, peritonitis, after-pains.*

Chloral.

Take hydrate of chloral, two drachms; syrup of orange-peel, two ounces: mix. Two teaspoonfuls at bedtime; or, in cases of delirium tremens, every five or ten minutes.

Chlorodyne.

Consists of a mixture of chloroform, morphia, Indian hemp, opium, and other anodynes. Dose, thirty drops in water, as indicated. Good to relieve pain.

Hyoseyamus.

Take of the solid extract of Hyoscyamus (English), sixty grains; pulverized opium, five grains; sugar of milk, two drachms: mix, and rub up into a powder very fine, then divide into thirty parts. One every two hours. *One of our best anodynes in inflammation of the brain; acts promptly on the hollow viscera, stomach, bowels, bladder; and almost immediately relieves strangulated hernia.*

Lobelia.

Take half an ounce of the ethereal tincture of lobelia; aromatic spirits of ammonia, two drachms; tincture of aconite,

twenty drops; camphor-water, half a pint: mix. One tablespoonful every two hours. *Useful in asthma, but more especially in the difficult breathing of bronchitis.*

Opium and Ipecac.

Take powdered opium, five grains; pulverized ipecac, ten grains; nitrate of potassa, sixty grains: mix. Make ten powders. One occasionally, in chronic cough.

Wild Cherry.

A cold infusion, drunk freely, is invaluable as a sedative.

Croton Chloral (*Neuralgia*).

Take of croton chloral forty grains; sulphate of quinine, twenty grains; glycerine, a few drops, to make it into a mass. Make twenty pills. One to be taken before an attack, or during an attack; take often till relieved. Affords almost immediate relief from pain in neuralgia.

If patient has an aversion to pills, then make the following: Take sixty grains of croton chloral; one ounce of glycerine; three ounces of distilled water: mix. Shake well before using. Dose, a tablespoonful every fifteen minutes, until it is efficacious in relieving the pain.

Guarana.

Teaspoonful doses of the fluid extract of guarana, administered every five or ten minutes, afford instant relief of all forms of sick-headache. Besides, it fortifies the system against all shocks, and gives great powers of endurance to the human body.

Bromohydric Acid.

Take six ounces of syrup of squills; one ounce of bromohydric acid: mix. One teaspoonful every three hours; or in half teaspoonfuls very frequently, to relieve great distress.

It is an invaluable anodyne in nervous exhaustion, excitability, hysteria; allays vomiting; exercises a powerful effect upon the brain and spinal cord; hence it is of great utility in cough, whooping-cough, painful uterus, and other distressing complaints. In cases of colic, or cramp of the bowels, add ten or twenty drops of chloroform to each teaspoonful.

Nitrite of Amyl.

This drug should be kept in pearls, with from five to eight drops in each; because, if administered from a bottle, it loses strength, and you will be disappointed in its use. Break a pearl containing five or eight drops on an ordinary piece of rag, and inhale, in *asthma, angina pectoris, sea-sickness, and in suspended animation from chloroform.* It is a safe, volatile narcotic. *Useful in lockjaw.*

ANTACIDS, OR SALINES.

Medicines that tend to neutralize acidity. Not much used now, as it has been demonstrated that acids tend to excite the normal alkaline secretion from all glands; hence they are justly preferred. Besides, antacids, or alkalies, stimulate the mucous coat of the stomach so excessively as not only to relax it, but give rise to catarrh and ulceration of the stomach.

Bicarbonate of Potassa.

Take twenty grains bicarbonate of potassa; dissolve in two ounces of water; take at one draught. The same to be taken every two hours till the urine is alkaline. *It is sometimes of use in acute rheumatism.*

Potash and Lime-Water.

Take a teaspoonful of lime-water; fifteen to thirty drops of liquor potassa; mix together, and then add to either a cupful of beef-tea or milk, two or three times a day. *It will diminish the fat of the body*, besides rendering the secretions alkaline.

Fucus Vesiculosus and Liquor Potassa.

Take six ounces of the fluid extract of fucus vesiculosus, and two ounces of the liquor potassa: mix. Dose, a teaspoonful twice or thrice daily in water. *The best anti-fat remedy. It will rid the body of that non-vital element, fat, in a few weeks.*

Magnesia.

Take of carbonate of magnesia, bicarbonate of soda, of each twenty grains; add to a warm infusion of sassafras, and take twice a day. *Very valuable in nettle-rash and tetter.*

Lithia.

Carbonate of lithia, or citrate of lithia, in five or six-grain doses, is very useful in gout, taken in soda-water, or plain water. *Decidedly useful in diminishing the uric acid.*

Seidlitz Powder.

Bicarbonate of soda, grains forty; tartrate of soda, one hundred and twenty grains: mix, and make an effervescing draught, with thirty grains of tartaric or citric acid.

Cream of Tartar Drink.

Take tartaric acid, one ounce; two ounces of white sugar; syrup or essence of lemon, to flavor; two pints of boiling water. When cool, *use as a common drink in fever, constipation, or where there is great thirst.*

Bicarbonate Potassa Drink.

Take half an ounce of bicarbonate of potassa; water, one or

two pints; then flavor with syrup of lemons. *Drink freely in rheumatism or red gravel.*

Saline Lemonade.

Take of common salt three tablespoonfuls; half an ounce of chlorate of potassa; a quarter of an ounce of tartaric acid; one drachm of phosphate of soda; six ounces of lemon-juice; water, six pints, and flavor with syrups to suit: mix. *As a spring drink to rouse up the action of the liver, it is invaluable.* It may be drank freely.

Colchicum and Chlorate of Potassa.

Take half a pint of camphor-water; two drachms of chlorate of potassa; wine of the root of colchicum, two drachms; liquor of citrate of ammonia, two ounces and a half: mix. One tablespoonful every hour, in gout.

Phosphoric Acid Drink.

Take two pints of infusion of barley; one ounce of glycerine; and three drachms of phosphoric acid: mix. Tablespoonful frequently. *Excellent for assuaging thirst in fevers.*

Chlorate Potassa.

Take one ounce of chlorate of potassa; three of bicarbonate of potassa: mix. Divide into eight powders; one to be dissolved in a pint of barley-water for a day's drink. *Good to render the system alkaline.*

Lime-Water.

To make lime-water perfectly: Take eight ounces of carbonate of lime; boiling water, sixteen pints. First slake the lime with a little water, and agitate; then add the balance of the water, and let it steep twenty-four hours; filter off the clear liquor for use. *It is a useful remedy as an antacid, and also as an antiseptic; destroys disease-germs. It can be given in teething, all fevers, and acid states, in from half a teaspoonful to a teaspoonful, always in milk.*

Lime-water for washes and injections may be made by pouring boiling water on ordinary lime, and letting it stand overnight, and then taking the clear portion for use.

Tartrate of Sodium.

Added to water, and used for a drink, is a valuable antacid.

Liquor Ammonia Acetatis.

Take four ounces of the liquor ammonia acetatis; one ounce and a half of sweet spirits of nitre; half an ounce of the tincture of iron; and thirty grains of the sulphate of quinine: mix. Dose, one teaspoonful every three hours, *in fevers when an antacid is demanded.*

Phosphate of Soda and Citrate of Potash.

The phosphate of soda can be given in half-teaspoonful doses in water, or added to gruel or beef tea, in disease of the liver, with most beneficial results; or it can be administered in alternation with the citrate of potash, in doses sufficient to keep the urine alkaline. Thus combined, they have a disintegrating action on stone in the kidney and bladder. *Of great value in liver complaints and the uric acid diathesis.*

Citric Acid and Carbonate of Soda.

Take one ounce of citric acid, and one of carbonate of soda; mix them together. Then take a teaspoonful of this composition, and add to a tumbler of water; as soon as effervescence takes place, it should be drank. It is more pleasant than soda-water and *very beneficial in torpid liver in the summer months.*

Clysmic Mineral Water.

This is an unexcelled and indispensable antacid, and should be freely used in all affections of the kidneys and bladder.

ANTISPASMODICS.

Are remedies that tend to allay spasm, or muscular rigidity, and are useful in deranged states of the nervous system when there is no fever, or inflammation, or debility. They relieve spasm, wipe out, or suspend reflex impressibility, or excitation.

Sumbul; or, Musk-Root.

From a half to a teaspoonful of fluid extract of musk-root every few minutes, by mouth, if patient can swallow; or by enemata, if unable to get it down on stomach. *Forms one of the most pleasant and efficient of all muscular relaxants, as it does not nauseate. Of great utility in spasms, convulsions, hysterical fits, or whenever there is great excitation of the nerve-centres.*

Lobelia.

An infusion of the leaves, a small handful, to a pint of boiling water; let it steep a few minutes, and begin its use, either by mouth or rectum, as soon as sufficiently cool. Give enough to nauseate and relax, but never to vomit.

Lobelia, Capsicum, and American Valerian.

Take two ounces of lobelia—one of the plant, the other of the seeds; one of capsicum, and one of valerian pulverized. Add the entire four ounces to one pint of brandy or whiskey. Shake well, and begin to use at once in from teaspoonful to table-spoonful doses, every few minutes.

If unable to procure the above, then purchase one ounce of the fluid extract of lobelia, one ounce of capsicum in fluid ex-

tract, and one ounce of fluid extract of valerian, and mix the three together. Begin its administration in teaspoonful dose; give every few minutes until spasm relaxes. If unable to swallow, administer repeatedly by the rectum, in large doses. This is one of the very best of all antispasmodics, safe, reliable, and prompt in action. *Capable, without the aid of hot bath or other measures, of relaxing the tetanic spasm of lock-jaw. Useful in all convulsions, epileptic fits, tetanus, hysterical fits, whenever spasm exists. It is a mixture that every family should keep on hand.*

Compound Powder, or Tincture of Lobelia.

Composed of equal parts of lobelia leaves powdered; blood-root powdered; and skunk-cabbage root, mixed together, either in powder, or by pouring whiskey on it to keep it. In either case, small doses, repeated every few minutes, *relieves the spasm of the glottis in whooping-cough, the contraction of the bronchi, and wheezing of asthma, and the spasm of the heart in angina pectoris.* Never give in doses to cause vomiting.

To Cure Cramps.

Take half an ounce of chloroform; one drachm of oil of camphor; one ounce of mucilage of gum-arabic; and one grain of the acetate of morphia: mix. Dose, one teaspoonful every two hours.

APHRODISIACS AND ANAPHRODISIACS.

Aphrodisiacs are remedies that are supposed to increase the sexual appetite and invigorate the organs of generation. They may be termed sexual stimulants, and are very few in number, consisting chiefly of the preparations of iron, cinchona, nux vomica, damiana, cantharides, phosphorus.

Anaphrodisiacs, again, are believed to repress sexual desire, cut off the appetite, and are a very numerous class of remedies, and consist specially of the green root tincture of gelseminum, bromide of potass, camphor, lupulin, belladonna, digitalis; and all the acro-narcotic drugs possess this property in a remarkable degree.

Damiana Compound.

This is prepared by mixing equal parts of the true fluid extract of damiana; tincture of nux vomica; tincture of cantharides; and fluid extract of coca. Dose will range from twenty to forty drops. *It has great efficacy in sexual debility, or lethargy of the sexual organs, whether due to abuse or old age.* Many cases of partial or total impotence are cured by it in its ozonized form.

Cinchona and Nux Vomica.

Take four ounces of compound tincture of cinchona, and one ounce of tincture of nux vomica: mix. Dose, a teaspoonful

three times daily. *A valuable sexual tonic and excitant; excellent in habitual constipation and in piles.*

Iron and Quinine.

These two drugs are of great utility in deficient sexual power. They can be used in various forms: as one ounce of the tincture of iron to four ounces of compound tincture of cinchona. Dose, a teaspoonful in water thrice daily. Or, iron, by hydrogen, combined with quinine, grain for grain; or, tincture of iron, one ounce; quinine, twenty grains. Dose, twenty drops thrice daily in water. Or, half an ounce of phosphate of iron and one drachm of quinine, to half pint of brandy: mix, and shake well. Dose, one to two tablespoonfuls thrice daily.

Spermatorrhœa Pill,

As laid down in another part of this work, is the best combination to cut off sexual desire for a given time, and leave the organ more vigorous than before.

Bromide of Potassa and Gelseminum.

Take four ounces of camphor-water; one ounce of bromide of potassa; one ounce of tincture of green root gelseminum; and two drachms bicarbonate potassa: mix. A teaspoonful at three, six, and nine P. M. *Very effectual in cutting off the sexual appetite.*

Digitalis, Belladonna.

Those and other acro-narcotics are objectionable, same as the bromide of potass, as they have the faculty of *drying up, absorbing, and blighting the testes and ovaries.*

ANTISEPTICS.

Antiseptics are a most valuable class of remedies, which prevent change or decomposition. A very large proportion of them enter the blood, and there they destroy all disease-germs, purify and cleanse that fluid. They have also septicidal power: destroy ferments, neutralize the action of some deadly poisons within the living organism, without affecting the blood or interfering with the power of sustaining life.

Disinfectants.

The most useful agents are, chloride of lime, quick-lime, carbolic acid, permanganate of potass, chloralum, iodine, bromine, chloride of zinc, sulphate of iron, sulphurous acid gas, powdered charcoal, burnt coffee, dry earth. The sick-chamber should be kept sweet by a free use of a solution of permanganate of potassa in the bed-pan, and the tincture of iodine around in vessels. To disinfect a room, sprinkle powdered or stick sulphur over the red coals in an open furnace, or shovel,

shutting doors and windows. This evolves sulphurous acid gas, which is more penetrating than either chloride of lime or carbolic acid.

Iodine is the most pleasant agent in a sick-room. It disinfects and deodorizes, and is the most manageable of all remedies. Half an ounce, spread out on two saucers on the mantel, is sufficient; replace it as it volatilizes. If desired, place one of the saucers on the stove; it will volatilize at once, and be diffused through the room. It annihilates all living diseased germs with which it comes in contact, and admits of being breathed freely and easily by the patient and attendants. It is doubtful whether it is not the best disinfectant in small-pox.

To disinfect a room with burning coffee beans, is of no avail; neither is charcoal, thymol, nor carbolic acid of much use. The remedy which volatilizes, and thus diffuses itself, is best. An efficient method of destroying diseased germs in the evacuations, is to pour in disinfectants upon them before they leave the room. For cheapness and efficacy, a solution of the sulphate of iron, or permanganate of potass, answers admirably; and for large cess-pools, ten pounds of sulphate of iron, dissolved in half a barrel of water, and poured in at the rate of one or two buckets a day till it is exhausted, will kill any diseased germ in the mass. Every father should see to it that every diseased germ from a child, or other person, suffering from contagious disease, is destroyed. The chloride of lime is efficient, but its smell is exceedingly disagreeable to most sick persons. The sulphate of iron has no smell, and is the cheapest and most valuable of all disinfectants for sewage, but it does not diffuse itself through the atmosphere. The solution of chloride of zinc is more expensive, very corrosive, and poisonous. Carbolic acid is not very volatile, unless heated thrice daily; then it is very efficient. Chloralum, obtained by the double decomposition which occurs when solutions of sulphate of alumina and chloride of lime are mixed together, is a very elegant disinfectant.

To Disinfect Body-Linen.

Have a tub of water ready, in which a disinfecting solution is added; one that will not rot or destroy the linen that may be placed therein; a tablespoonful of *Condy's fluid* to a bucket of water is the proportion. Allow the clothes to remain in it an hour, and then transfer the linen to boiling water. Clothing can be disinfected by steeping them in a very sour water, rendered so by sulphurous acid, which has no effect on colors. Dry heat is a valuable disinfectant—say, from 200° to 300° F.—but it cannot be used in families.

Antiseptic Treatment.

The principle recognized is as follows: In all cuts, incisions, wounds, breaches of the skin, etc., that simultaneously with the injury or lesion, the living matter concerned in the nutrition of the wound becomes degraded into diseased germs; that by the application of antiseptics the part is stimulated sufficiently to prevent the degradation, and where the diseased germs are formed they are destroyed. The remedies employed for the purpose are carbolic acid, boracic acid, salicylic soda, compound tincture of benzoin, balsam of fir, oil of eucalyptus, charcoal, compound tincture of myrrh, and other antiseptics. There can be little doubt of the utility of the method. The acids, as carbolic, must be diluted, one ounce of the acid to six or ten of olive oil. No wound or ulcer should be treated in any way but by antiseptics, beginning with simple vaseline ointment, up.

Chlorine,

As a gas, is not fit for inhalation; but as follows, it can be administered internally: Take two drachms of muriatic acid; two drachms of chlorate of potassa; and add them to four ounces of water: mix. To a little child, one teaspoonful can be given every two or three hours in half a teacupful of water; and just when ready to take, dissolve half a teaspoonful of sugar in the mixture, so as to evolve the chlorine on the stomach, which is so vivifying and cleansing to the blood of all those suffering from contagious diseased germs. *Invaluable in scarlet fever, diphtheria, small-pox, and other living poisons.*

Liquor Chlorinated Soda.

A few drops in water every few hours are valuable in *gangrene of the lung, low fever; destroys the factor, acts as an alterative.*

Permanganate of Potassa.

The solution of permanganate of potassa is an excellent disinfectant, and can be used internally, by injections, and locally. It destroys all disease-germs, even those of snake-bite. From one-half to one grain to a little water, internally; and for washes, injections, etc., make the water a good violet color, and use profusely, in *leucorrhœa, gonorrhœa, and as a wash.*

Chloride of Zinc.

Take ten grains of chloride of zinc, eight ounces of water: mix. Add one or two tablespoonfuls to a little water. Use as a wash, gargle, when a disinfectant is needed. *It is very efficacious.*

Chloride of Lime.

Take two ounces of carbonate of lime; saturate it with muri-

atic acid, and then add six ounces of water, and filter carefully. Each teaspoonful contains sixteen grains of the chloride of lime, which is a dose, and to be taken three times a day, added to half a teacupful of water. *Valuable alterative in all disease-germs, scarlatina, small-pox; and so powerful is it that it is the only known remedy to destroy the sarcinæ on the stomach.*

Sulphurous Acid.

One of the best antiseptics in all disease-germs; added to water, for internal use, just sour enough to be agreeable to drink; and slightly stronger as a lotion or wash for sores, gonorrhœa, leucorrhœa.

Logwood.

In infusion, extract, is not only an astringent, but a valuable antiseptic.

Camphor, Menthol, Thymol.

May be administered in capsules, and are valuable antiseptics; or incorporated into ointments, lotions, where indicated. Internally, very valuable in cholera. Dose of either, about five grains every three hours.

Sulphite Soda.

Take from thirty to sixty grains of the sulphite of soda in double distilled cinnamon-water three times a day: mix. *Excellent in gastric catarrh, when the sarcinæ ventriculi are on the stomach.* Patient should eat unfermented bread when taking this.

Chlorate Potassa.

Take of chlorate of potassa, thirty grains; glycerine, three teaspoonfuls; tincture of iron, thirty drops; water, three ounces: mix. *Give a teaspoonful every half hour, day and night, in diphtheria.*

Chlorate Potassa.

Take four ounces of water, and add to it two drachms of chlorate of potassa and two drachms of muriatic acid: mix. One teaspoonful every three hours, in a little sweetened water. *Invaluable in scarlet fever and diphtheria, and as a gargle in sore throat.*

Chlorate Potassa.

Take of chlorate of potassa two drachms; sulphate of quinine twenty grains; muriatic acid, one drachm; simple syrup, four ounces: mix. One teaspoonful every four hours. *Very useful in aerating or cleansing the blood, in pneumonia, overcrowding.*

Saccharate of Sulphur.

Take one pint of good brandy; four ounces of New Orleans molasses; and one and a half ounces of sulphur: mix well.

Dose from one to two tablespoonfuls immediately after eating. This has the effect on the stomach of preventing a change of certain elements into lactic acid, and thus in a few days will *starve and stamp rheumatism out*. It is important that the molasses be the old-fashioned treacle, as the modern syrup, made of glucose is decidedly poisonous. It should be well shaken before using. It arrests all ferment in the stomach.

Chloride of Lime.

Three grains, three times a day, in sweet milk, destroys the germ tubercle in the blood, and at once arrests night-sweats.

Salicylate of Soda.

Is a powerful antiseptic, and it is doubtful whether its great utility in rheumatism is not due to its faculty in arresting the process of fermentation.

Strong Coffee for Chills.

Make strong mocha or Java coffee, sweeten to suit, and add the same quantity of lemon-juice; drink warm on an empty stomach. *Often of utility in ague.*

Sulphur to Disinfect.

Set fire to a small quantity of sulphur, close the doors carefully, when the fumes will penetrate everything in the apartment.

ARTERIAL SEDATIVES.

Arterial sedatives are a most valuable class of remedies that stimulate the brain, and thereby restore tone, vigor, force to the heart, and thus control the circulation, diminish heat and pulse. Great caution is necessary in their use, as they are narcotics, and also have anodyne properties. Some of them act upon the blood, but their chief property consists in controlling the heart's action, decreasing heat and respirations. All act directly upon the brain, and indirectly upon the heart and arteries.

Aconite.

Take of either the tincture of the leaves, or root, one teaspoonful, which add to four ounces of water (half a tumblerful); cover to prevent evaporation. Give a teaspoonful every fifteen minutes till skin becomes soft, moist; heat, pulse and respirations come down to near normal; then continue the remedy at intervals of half an hour, hour, and two hours. *Best adapted for fevers of children and women.*

Aconite and Sweet Spirits of Nitre.

One teaspoonful of tincture of aconite; one to two of sweet spirits of nitre. Mix in four ounces or half a tumbler of water;

cover. *Give a teaspoonful quite often, as above ; when fever abates, at longer intervals apart.*

Veratrum Viride.

One teaspoonful of the tincture of veratrum viride added to four ounces of water (half tumbler). Cover to prevent evaporation. One teaspoonful every fifteen minutes, or more frequent in grave forms of inflammation of very vital organs, as brain and lungs, until pulse, heat and respirations are normal, then at longer intervals of half an hour, hour, two hours, holding the position gained. If too large a quantity happens to be given in the above way it will cause great prostration, cold, clammy skin, nausea, vomiting, diarrhœa, which is instantly relieved by administering half a teaspoonful of laudanum, but well watched, there is no danger of such an occurrence.

This is one of the best remedies in the entire materia medica for fevers and inflammation, it is so positive in its action—our only sure remedy in acute inflammation of the brain or lungs. It is best adapted to adult males, although it may be given in either sex, and also to children.

Aconite, Veratrum Viride, and Sweet Spirits of Nitre.

Take one teaspoonful of tincture of aconite ; one of veratrum viride, and a small tablespoonful of sweet spirits of nitre ; add the three to four ounces, or half a tumblerful of water : mix ; cover. Begin in high fevers, or inflammations, with a teaspoonful every few minutes, as the pulse decreases every fifteen minutes ; when the pulse is down to 65 or 70, every one or two hours ; regulate the frequency by the rate of pulse. The veratrum in this form operates better than alone, much more kindly in its action, and can be given to both sexes during all ages. *It is the grand remedy for all fevers and inflammations, and should be in every family.*

Aconite, Belladonna. and Veratrum Viride.

Take of the tincture of aconite, one teaspoonful ; the same of the tincture of belladonna, and the same of the tincture of veratrum viride ; add the three to four ounces, or half a tumblerful of water : mix ; cover. Dose, one teaspoonful every fifteen minutes, till pulse reaches 65 or 70, then at longer intervals apart, every half hour, hour, two hours, to hold the position. That is controlling the fever or inflammation. As the belladonna and aconite have a special action in this form, viz. : to increase the fluidity of blood, act on the nerves of the face, those of the throat, tonsils, and parotid, on the breast and uterus, hence this prescription is most valuable in acute tonsillitis, mumps, neuralgia, inflammation of the breast, uterus, testicle ; but can be used in all fevers and inflammations.

Tincture of Green-Root Gelseminum.

There are two tinctures of the yellow jessamine, one prepared from the dried rind of the root, the other from the rind when in a green state. The dry root tincture, as it is termed, is very poisonous, and not useful in fevers, but of value in neuralgia; the green root is what is used in fevers, and as an anaphrodisiac. One tablespoonful added to half a tumbler of water: mix, and cover. One teaspoonful every fifteen minutes till heat and pulse come down to 75 or 80; then at longer intervals. If the eyelids become sluggish or stiff, or the patient sees double, hold up its use. *Never give to children. It is best adapted for malarial fevers, ague, remittent, bilious intermittent, or remittent yellow fever, inflammation of stomach, liver, peritonæum, uterus.* It can be combined with aconite, veratrum viride, when a powerful action is desired, as in malignant remittent.

Tincture of Veratrum Viride, Aconite, and Gelseminum.

One teaspoonful of tincture of aconite; one of veratrum viride, and one tablespoonful of tincture of green root gelseminum: mix, and add to four ounces of water. Administer in teaspoonful doses every fifteen minutes till pulse, heat and respirations come down to normal standard, then every half hour, hour, or two or three hours apart. Hold the position gained carefully.

Tincture Green Root Gelseminum and Quinine.

Dissolve five, ten, twenty, or more grains, of sulphate of quinine in a little water, with tartaric acid; then add one teaspoonful of tincture of green root gelseminum, and take for a dose an hour before an ague chill, or during the progress of remittent, bilious, or yellow fever; it may be repeated if necessary. It will often break up that class of fevers.

Tincture of Digitalis.

May be used in fevers, especially scarlatina, combined with aconite and belladonna. It must be carefully watched. Not much used, but never should be omitted in scarlatina. Dose will range from one to two drops every three hours, according to the age of the child.

Quinine and Salicylate of Soda.

Give alternately, in doses ranging from two to five grains, every two hours, so as to reduce heat, pulse, and respirations to a normal standard.

Other Arterial Sedatives,

Such as bathing, sponging, shampooing, recumbent posture, use of antiseptics in all diseases, stimulants; in other words, any procedure, or remedy, that aids in raising the standard of

vitality, is to be regarded as an arterial sedative. Nauseants, like lobelia, ipecac; and saline diuretics, as cream of tartar, nitre, are also arterial sedatives.

Digitalis, Aconite, and Belladonna.

Add one teaspoonful of tincture of aconite, tincture of belladonna, and tincture of digitalis, to four ounces of water (half a tumblerful). Give a teaspoonful every two or three hours. *Most invaluable in scarlet fever.*

Tincture of Lobelia.

Administer a few drops of the hydro-alcoholic tincture of lobelia in water, or a tea of asclepias, or with compound tincture of serpentaria. It has a most wonderful effect in lowering the pulse, heat and respirations; continue with it till they are normal; never nauseate or cause emesis. The hydro-alcoholic tincture is made of the leaves, stems, and seeds of the plant, in equal portion, and with alcohol reduced to 45, or the same strength of whisky.

Another excellent plan is to add one heaped teaspoonful of pulverized lobelia-leaves to one teacupful of boiling water; infuse for an hour, then sweeten, and give half or a full teaspoonful of the infusion ever half hour till pulse comes down to a natural standard. *It is of the greatest value in bronchitis, or colds, infantile catarrh.*

ASTRINGENTS.

Astringents are medicines that contract the living fibre. Astringents cause contraction, greater firmness of muscle, diminished calibre of blood-vessels, greater tension and rigidity of absorbents, and a closure of secreting orifices, and checking of secretions generally. They promote moderate and permanent excitement of organic life. They do not influence the nervous system, or the function of animal life. They are very useful in hæmorrhages, diarrhœas, catarrh, or other relaxation. They consist of both vegetable and mineral substances.

Cranesbill, Bayberry, Strawberry Leaves.

Infusion or decoction of the entire three combined, or any one of them, makes a pleasant, agreeable astringent. Drink freely. *Excellent in diarrhœa, and as an injection.*

Tannin and Logwood.

Take of tannin, pulverized opium, each ten grains; sulphate of quinine ten grains; and of extract of logwood thirty grains. Make twenty pills, and take one after every motion of the bowels when they exceed one per day. *Good in diarrhœa, after the bowels have been acted on by a cathartic.*

Catechu, or Kino, and Chalk Mixture.

Take of tincture of either catechu or kino, one ounce; chalk mixture, an ounce; paregoric, one drachm: mix. Half to a teaspoonful every three or four hours. *Efficacious in checking the diarrhœa of children.*

Tannin and Nitric Acid.

Take thirty grains of tannic acid; one drachm of nitric acid; tincture of cinchona compound, four ounces; water, four ounces: mix. Take a tablespoonful repeatedly. *A good way to give tannin, so as to check the destructive ulceration of senile bronchitis.*

Aromatic Sulphuric Acid.

Aromatic sulphuric acid, one ounce; cinnamon-water, four ounces: mix. Teaspoonful doses. *Invaluable for all hæmorrhages.*

Sulphuric Acid, Turpentine, and Alcohol.

Take chemically pure sulphuric acid, half an ounce; oil of turpentine, one ounce; alcohol, an ounce: mix and shake well. Dose, from five to ten up to fifteen drops, in water, as often as indicated. *Will often control the most profuse and violent forms of uterine hæmorrhage and bleeding from lungs.*

Turpentine.

Take spirits of turpentine, two drachms; mucilage of gum arabic, one ounce; oil of peppermint, thirty drops: mix. Administer in teaspoonful doses. *Often useful in typhoid fever.*

Gallic Acid.

Gallic acid, ten to fifteen grains, dissolved in a little port wine: given at a dose, and repeat. *A valuable astringent in hæmorrhage from the lungs, stomach, intestines, or kidneys.*

Nitric Acid.

Take of dilute nitric acid, two drachms; tincture of cinnamon, six drachms: mix. Give thirty drops in a wineglassful of water every two hours. *Useful in hæmorrhage from the kidneys, bladder, uterus.*

Alum and Sulphuric Acid.

Dissolve as much pulverized alum as possible in a tumblerful of water, of which take two tablespoonfuls every two hours, and before taking, add to each dose fifteen drops of aromatic sulphuric acid. *Very good in all hæmorrhages.*

Perchloride of Iron.

Take fifteen drops of perchloride of iron, add to one ounce of sweetened water; then add six drops of dilute muriatic acid: mix, and take at a dose, and repeat if necessary. *Good in all hæmorrhages.*

Tannin and Opium.

Take ten grains of tannin; ten of pulverized opium; add a few drops of cinnamon-water, to make a mass; then divide into fifteen pills, and take one after every motion of the bowels, when they exceed one per day. *Excellent in chronic diarrhoea.*

Other Astringents,

As infusions of matico, logwood, sumach.

Bayberry and Poplar Bark.

Take a tablespoonful of pulverized bayberry, same of poplar bark, and half a teaspoonful of cayenne pepper; infuse in half a pint of boiling water; cool. A wineglassfull every hour, in diarrhoea.

Heat and Cold as Astringents.

The vitalizing action of heat induces tonicity of the nerves and contraction of the vessels; hence, hot water in the vagina or rectum, in uterine hæmorrhage, is more valuable than cold. Cold, or ice, in some instances, is not procurable or convenient of application, and then we have recourse to freezing mixtures, which may be made of equal parts of ice and common salt, or the following:

Mixture.	Parts.	Temperature.
Snow or ice,	12	} From 18° to 25° Fahr.
Common salt,	6	
Nitrate of ammonia,	6	
Muriate of ammonia,	12	} Near zero.
Saltpetre,	12	
Nitrate of ammonia,	8	
Common salt and water,	8	

Aromatic Syrup of Blackberry.

Take of blackberry juice two pints; sugar, one pound; brandy, one pint; six grated nutmegs; pulverized cinnamon, half an ounce; cloves and allspice, of each a quarter of an ounce: mix. Dose, from one to two tablespoonfuls, every two or three hours, *in diarrhoea.*

Rhubarb and Potassa.

Take of fine Turkey rhubarb, pulverized, one ounce; carbonate of potassa, half an ounce; golden seal and bayberry, of each one-quarter of an ounce; cinnamon, half an ounce; pulverized sugar, one ounce; oil of peppermint, twenty drops: mix. One-half, or a teaspoonful dissolved in a cup of tea or coffee, *is of the greatest utility in diarrhoea, caused by some indigestible substance in stomach and bowels.*

Neutralizing Mixture.

Powdered rhubarb, half an ounce; saleratus, half an ounce;

powdered peppermint-plant, half an ounce; aniseed, half an ounce. Pour on the whole one pint of boiling water, and let it infuse over night, so that it will be reduced to a little over half a pint of liquid, when strained off. Add to the mixture one ounce of the fluid extract of bayberry, and add sugar enough to make a syrup. *A most excellent combination in all affections of the bowels, especially when loose.*

For Diarrhœa.

Take of tincture of opium, spirits of camphor, essence of peppermint, tincture of capsicum, of each half an ounce; fluid extract of bayberry and neutralizing mixture, two ounces; brandy, three ounces. Dose, from a teaspoonful to a tablespoonful as often as indicated. *An excellent combination.* Or,

Take subnitrate of bismuth, lactopeptine, of each one teaspoonful; pulverized opium, ten grains: mix. Make twenty powders; one after every movement of the bowels, when they exceed one per day. Or,

Take syrup of rhubarb and potassa, four ounces; tincture of catechu, one teaspoonful: mix. One teaspoonful thrice daily. Or,

Take fluid extract geranium; fluid extract coto bark; fluid extract pipsissewa; of each, one ounce; simple syrup, three ounces: mix. Dose, one teaspoonful every hour.

For Gonorrhœa.

Take one pound of pulverized cubebs; a quarter of a pound of alum; a quarter of a pound of bicarbonate soda; and half a pound of pulverized cinnamon: mix. Dose, one or two tablespoonfuls every three hours. *Valuable in gonorrhœa, or gleet.*

Blackberry Cordial.

To one quart of blackberry juice add one pound of white sugar; two tablespoonfuls of pulverized cloves; same of cinnamon, allspice, and nutmeg. Boil all together for fifteen minutes, and when cold, add a quarter of a pint of Jamaica rum. Bottle, cork tightly, and seal. Dose is a wine-glassful three or four times a day. *Most useful in summer diarrhœa.*

Cholera Mixture.

Take essence of ginger; camphorated tincture of opium; aromatic spirits of ammonia; spirits of camphor; tincture of capsicum; of each, one ounce; oil of cloves and peppermint, half a drachm: mix well. Dose, from half to a tablespoonful every few minutes till relief is obtained.

Or take one ounce of the tincture of camphor; one ounce of tincture of rhubarb, and one ounce of the tincture of opium: mix all. Dose from twenty to thirty drops every fifteen minutes, till relief is obtained.

BATHS.

The ablution of the entire body once every twenty-four hours is an indispensable requisite to good health. This is to be done for ordinary cleanliness, to remove effete or waste matter, disease-germs, stimulate the capillaries and the nerves of the skin, aerate the blood. Tepid, soft, or alkaline water is to be preferred.

In acute disease, the entire surface of the body should be sponged twice or thrice daily, for the purpose of removing the great waste, opening the pores, and diminishing heat, pulse, and respiration. These frequent spongings are in all cases to be followed by drying off well, and then rubbing with the dry hand. In such diseases as scarlatina or small-pox, we cannot carry this out, but then we can brush them over with sweet olive oil; castile soap and warm water first. Sometimes it is very cooling and refreshing to follow with warm vinegar and water, or bay rum, and if there is great wasting, rub in as much warm olive oil as the skin will absorb after the evening bath. There are some conditions, or exceptions, to bathing, such as patient's suffering from fractures, hæmorrhages, or other affections, in which he should not be disturbed.

Temperature of Baths.

The cold water bath, 33° to 65° F., simple or medicated.					
" cool	"	65° to 75° F.,	"	"	"
" temperate	"	75° to 85° F.,	"	"	"
" tepid	"	85° to 92° F.,	"	"	"
" warm	"	92° to 98° F.,	"	"	"
" hot	"	98° to 110° F.,	"	"	"

Alkaline Baths.

Carbonate of soda (common washing soda), one pound to thirty gallons of water, temperature to suit—generally tepid. *Besides being essential to good health, it is of great use in the lithic acid diathesis, chronic rheumatism, and scaly skin disease.*

Acid Baths—Nitromuriatic Acid.

Although the cuticle, or outside skin of the body, is like a rind, impermeable, still, by the aid of tepid water, it becomes relaxed sufficiently for medicated fluids to penetrate; so that, if we add about half a pound of nitromuriatic acid to thirty gallons of tepid water in a wooden bath-tub, and let the patient lie in it about twenty or thirty minutes, we have it taken up into the blood, and obtain its action on the liver. *Very useful in liver disease.*

The Bran Bath.

Thirty gallons of tepid or warm water; one pound of ordinary washing soda, and several quarts of bran. The wheaten phos-

phates are to be rubbed over any parts of the skin that are roughened, inflamed, or diseased. *A very valuable bath in all scaly affections of the skin.*

Iodine Baths.

Thirty gallons of tepid water ; one pound of washing soda ; iodine or tincture of iodide, enough to slightly stain the skin ; smaller quantities can be made for local baths. The combination of iodine, iodide of potass, and liquor potass can be used, but it is too expensive ; the former is cheap, and equally efficacious. Remain in it at least half an hour, or longer. *Used with marvelous success in tuberculæ, syphilis, parasitic skin diseases, and in chronic disease generally.*

Salt Water Baths.

Take the above iodine-bath, and add to it one or more pounds of common rock salt, and lie immersed in it half an hour. In it we have the iodine, which is really the chief agent in sea-bathing.

The common salt water bath is made by adding half a pound of bay salt to four gallons of warm water, and the entire body, except the hairy portions, sponged with it every morning. The surface of the body, before using, should be sponged off with a little hartshorn and water, thoroughly rubbed, or shampooed, or massaged ; the flesh-brush or Turkish towel used actively for a few minutes, and then the salt water sponged on part by part. *Useful in general debility.*

Sulphur Bath.

Take one pound of sulphuret of potassium, and one pound of washing soda, and add to thirty gallons of water, comfortably warm, in a wooden bath-tub ; lie immersed in it from thirty to forty-five minutes. The tub can be covered with oil-cloth, all but the face, as the odor is often unpleasant ; smaller quantities can be made for local baths. *This bath is invaluable in lead, mercurial, or other poisoning ; in paralysis from lead, lead colic, syphilitic disease of the skin, and in destroying disease-germs, as scabies, barber's itch, chloasma, etc.*

Borax Bath.

Take one pound of borax, one pound of washing soda, to thirty gallons of tepid water, or even half the quantity of the borax and soda, if the skin is soft. *Use as a bath in scaly, parasitic, and irritable diseases of the skin. Borax being a parasiticide, like sulphur, is an excellent agent for healthy as well as diseased cuticles, and should be generally used in all forms of alkaline bathing.*

Conium and Starch Bath.

The conium-bath is made thus : In thirty gallons of warm

or tepid water, add two handfuls of conium leaves, or an ounce of the solid extract; add, also, one pound of starch, properly cooked, to the bath. Cover the bath with oil-cloths, leaving the head bare, so that the conium be not inhaled, as it often gives rise to headache, if not so guarded. Remain in bath at least half an hour. *Most excellent in eczema; allays that intolerable itching in the skin in prurigo; relieves soreness, also operates favorably in rheumatic pain; acts promptly.*

A simple starch-bath, either alone, or with borax, without conium, is very soothing on inflamed skin.

Various Other Baths.

Baths medicated with creosote, carbolic acid, sulphate of iron, oak bark, pine, witch-hazel, arsenite of soda, etc., are of very little utility because their astringent action prevents them penetrating inwards. They are simply novelties in baths.

Gelatine Bath.

Melt one pound of good, white, cabinet-makers' glue, and add it to twenty gallons of warm water, in which two quarts of bran has been immersed in a bag. *It is extremely efficacious in eczema, and all irritable affections of the skin.*

Alcoholic Vapor Bath.

This is the most accessible, and for general utility, one of the best forms of bathing, and every family should be familiar with its use. In the first place any tinsmith will make a convenient lamp, like an oyster chafing-dish, with five wicks, each the thickness of a quill, and large enough to hold alcohol to burn three-quarters of an hour. In the centre, over the five flames, a deep plate, large enough to hold water to boil for forty-five minutes. The whole, for safety, might be placed inside of an iron pot, which is to be placed underneath the chair on which the patient is to sit. The patient is then to be divested of all clothes, and sit down on the chair under which the spirit-lamp is placed. This chair must have a thick, wooden bottom, and there must be some protection, either a piece of wood, or blanket, placed in front to prevent undue heat on his calves. The patient, sitting down, must be carefully enveloped in blankets pinned tightly around his neck, and laying on the floor, and be careful that no crevice, or hole, or outlet exists to let the vapor escape. The patient being thus duly enveloped and covered up, the lamp and saucer which had been previously fixed, the former with alcohol, and the latter with water, the five wicks are ignited. In a few minutes he begins to experience the glow of the burning alcohol, and by and by the steam begins to rise. Some recommend giving a cup of hot boneset, or pleurisy-root tea, but it is unnecessary—the best

drink is abundance of cold water. With this bath there is a determination of blood to the skin; it relieves cerebral, lung, and visceral congestion; induces a healthy action of the skin and mucous membrane; eliminates noxious matter from the blood, and imparts a sense of elasticity and vigor to the system. It is useful in both health and disease, but especially in colds; congestion of the lungs, liver, kidneys; dropsy, gout, and rheumatism, neuralgia. No tendency to catch cold after it. It will break up all fevers. It should be given upon an empty stomach, and never to pregnant women, or those who are menstruating. It can also be used for medicated vapor baths, by adding iodine, or other chemical agents to the water in the saucer, so that the patient is exposed to the influence of three agents, heated air, or alcoholic vapor, steam, and the medicinal agent used.

After one-half, or three-quarters of an hour in this bath, with copious perspiration, the light should be extinguished, and the blankets pushed down, the body well rubbed and dried, and then the lower half; a dry shirt put on, and place in bed for several hours, or over night. It is much superior to either the Turkish or the Russian bath, and costs little. No family should be without it.

The Turkish and Russian Bath.

The Turkish bath and Russian bath are of utility, but do not excel the above; they are apt to cause a determination of blood to the head, and the brain is liable to suffer. They are injurious when there is any obstruction to the circulation, or when the muscular fibre is weakened by tobacco, or when the heart or vessels are affected with fatty degeneration, or when there is any disease of the nerve-centres.

Mustard Foot-Bath.

Put a handful of mustard in a pail of hot water with several large lumps of washing-soda. Place feet in it as hot as can be borne, for fifteen or twenty minutes. *Valuable in congestion of the head, chest, suppression of the menses, etc.*

The Shower Bath; or, Cold Affusion.

Seat the patient in an empty bath-tub, and take two large watering cans, one filled with cold water, 40° F.; the other with tepid water. First pour from a height of several feet, the cold, on chest, face, and back; then take the other can and run the warm water in the same way; then the cold and hot alternately, or dash buckets of water in the same manner. The hot and cold water alternately produces the best reaction—it arrests irritability, lowers the temperature, lessens the frequency of the pulse and respirations. Best adapted for men.

The Shallow Bath.

Patient is made to sit in a bath, with a depth of water of twelve inches, while water is gently poured over the head, and then rubbed and dried, and again douched; and so on for half a dozen of times. The water is best cold. As a substitute for this, a sheet dripping out of cold water should be applied to the body, over which rubbing, massage, should be performed; then a dry sheet substituted for the wet one, and the same process repeated.

Wet Sheet; or, Blanket Packing.

The enveloping of the entire body in a wet sheet, blanket, or other agent, is of the greatest utility; but is best suited for hospital practice, where it can be carefully watched by the physician in charge. *Its utility in all fevers is decided, and for sun-stroke, nothing can equal it.*

The Warm Bath and Acid Sponging.

The warm bath is very sedative, especially when the system is irritable and heat is high; and should, if possible, be used in fevers, inflammations, and acute rheumatism. If patient is unable to get to the bath, the ordinary sponging should be carried out. The change from alkaline to acid sponging is often grateful to the patient.

Iodine Bath.

Iodine bath should contain half a grain of iodine to each quart of warm water; and for an adult, one drachm to twenty-five gallons.

Refreshing Bath.

In all diseases the skin should be sponged off with tepid water and castile-soap three times a day. To the water so used, add a tablespoonful of the following mixture: To one quart of alcohol add one teaspoonful of oil of lavender; one teaspoonful of oil of bergamot; one teaspoonful of oil of lemon, and one of oil of cinnamon. The addition of this makes it most refreshing.

Puff Powders; or, Skin Enamel.

Take half a grain of carmine; one drachm of nitrate of bismuth; one drachm of camphor; two drops of the oil of bitter almonds, and two ounces of starch. Mix into a fine powder. Or, take half a grain of carmine; one drachm of the white oxide of zinc; one drachm of camphor; one drop of otto of roses; and two ounces of starch: mix. Make into a fine powder. Both are to be used for dusting on the skin. *Valuable in chafing, or to cool the surface in the heats of the change of life; also, for tender parts, or excoriations. Makes an excellent face powder; makes the skin have an enamelled appearance.*

ELECTRICITY.

This agent is to be regarded as a nerve stimulant and tonic of a very powerful kind, exercising in all cases an effect on the general nutrition of the part.

This agent is used in three forms:

(1.) *That of quantity*: Produced by chemical action, and obtained directly from a battery, regulated by the number and size of its cells, and called the *continuous, voltaic, or galvanic current*.

(2.) *That of intensity*: Produced by induction, either from a magnet or galvanic current, by long coils of insulated wire, and called the induced, Faradic, or interrupted current, or magnetic electricity.

(3.) *That of highest intensity*: Produced by friction on an electro-negative substance, called static, or frictional electricity.

The two first are generally used, and the difference in action of the induced and continuous currents are due to—

The very high tension of the induced current enables it to overcome great resistance, and reach deep-seated muscles and nerves.

The greater quantity of the continuous current gives it more chemical power, decidedly affects nutrition by its action on minute vessels, and induces action which produces tissue-change.

The direction of the continuous current is uniform; the induced current changes constantly.

The continuous current flows in a regular stream as long as contact is maintained and chemical supply kept up. Passed through a group of healthy muscles, they make strong and protracted contractions. Electricity should never be applied to the human body heedlessly, nor carelessly, nor by a person not fully posted in its application, nor by any one not thoroughly familiar with the muscles and nerves of the body and with disease.

There is often a remarkable idiosyncrasy in some persons to the application of the remedy, and great care should be exercised in its use, especially about brain or cord.

Galvanism, or the continuous current, is rarely applied without intermission, which can be obtained by one of the conductors from the skin. The intensity of a single cell, unless very large, is insufficient to overcome the bad conducting power of the human body; therefore, when applying currents direct, many cells are usually used; as many as from forty to sixty should be contained in an apparatus intended for a variety of diseases.

For family use, the Faradic or magneto-electrical machine, with one or two cups, is sufficient.

The usual methods of applying electricity are direct and indirect localized electrization. In the former, the current bearers,

or poles, are placed directly on a muscle, or organ, to be Faradized or galvanized; in the latter, two points in the course of a nerve are selected for the poles, and the current is made to affect the part supplied by the nerve.

The poles of the battery should be encased in sponges, which should be taken off after every application, well cleansed and disinfected with weak muriatic acid water, so as to prevent disease-germs from being carried from one patient to the other during the treatment. The sponges should be kept moist with salt water, so as to carry the electricity away down into deep parts.

In its application, when we desire to soothe, stimulate, increase nerve-force, circulation, we apply positive pole to the origin of the nerve, or the part nearest its origin, and the negative to the other end. This excites healthy nutrition, with alkaline secretion; if the currents are reversed, negative to the origin and the positive to the other end, it irritates and produces an acid secretion.

The process of application in nearly all cases is much benefited with abundance of kneading, shampooing, or massage.

An electrician should be free from tubercle syphilis, cancer, and other disease-germs; because, if so affected, he will communicate them to the patient by the following, which is a common method of manipulation: Place patient's feet on a sheet of copper, or his buttocks on a metallic chair connected with the negative pole, while the operator holds the positive pole in a moistened sponge in his left hand, while with the right he manipulates the body.

No uneducated person should use this remedy indiscriminately. The highest skill and great experience are necessary in its use, especially about nerve-centres, in nervous exhaustion, anæmia of brain and cord, epilepsy, softening, melancholia, paralysis of cerebral origin, etc.

It is of great value in lead and mercurial paralysis, aided with alteratives, and iodide of potass, and sulphureted potass baths; facial paralysis, aphonia, paralysis of vocal cords, of bladder, of bowels; very great utility in constipation, inertia of liver, impotency, want of erectile power, progressive muscular atrophy, locomotor ataxia, chorea; palsy from overwork, such as we meet with in writers, needle-women, dish-washers, and also in shaking palsy. Cases are recorded where it is said to have cured tetanus and hydrophobia, but this is very doubtful.

Aneurism and Navus.—The introduction of one or more needles into the cavity of those blood-sacs, coagulates their contents at the negative pole. Some introduce the needles attached to both poles; others, simply the negative, with the positive sponge externally.

Asphyxia.—Place one pole on each side of the neck below the ear, so as to affect the phrenic nerve; use artificial respiration; if that fail, put one pole (positive) to nape of neck, and other over origin of diaphragm, near the seventh intercostal space.

Deafness and Tinnitus.—Fill ear with tepid water, and insert the positive pole, insulated only at tip; place other on neck; begin with weak current, and increase. Eye affection in same manner, by an eye fountain, negative pole to nape of neck.

Internal tumors require great care lest irritation be produced, and growth increased. Then electrolysis is often successful.

Diseases of Women.—In *amenorrhœa*: One pole placed over abdomen, the other on the lumbar spine; or if case is stubborn, positive on lumbar spine; negative attached to an insulated catheter, with bare tip in the uterus.

Menorrhagia.—Positive over lumbar spine, or from hip to hip; other over uterus or pubes.

Uterine Inertia in Labor.—Pains short, feeble, and at long intervals. The pregnant uterus has strong motor points, and these are easily influenced by the application of the battery—positive to spine, negative over the uterus; well marked, strong, long contractions take place.

Relief of pain: strong current, and wire brush over affected part.

Muscular Disease.—Massage, followed by Faradization of every part of the muscle, for one-half or three-quarters of an hour.

Asthma.—A large number of cases of asthma are due to bronchial congestion, combined with muscular spasm, both of which are due to nervous disturbance in the vagus; and those disturbances may be induced reflexly by irritation of the various nerves distributed to the upper part of the respiratory tract. Apply both poles to the neck, under the lower jaw; often affords relief.

CAUSTICS.

Caustics are a class of remedies intended to destroy the part with which they come in contact.

Chromic Acid.

Dissolve one drachm of chromic acid in three drachms of water. *Excellent to destroy warts.*

Chloride of Zinc.

Take of chloride of zinc, chloride of bromine, chloride of gold, and chloride of antimony, equal parts. Mix into a paste of sufficient thickness with flour. *Applied over cancerous growths, it instantly destroys them.* Or,

Chloride of zinc, bloodroot, equal parts; with water and flour to make paste. Same as the above.

Supersulphate of Zinc.

Take half a fluid ounce of sulphuric acid, and saturate with the sulphate of zinc. This forms a paste, which can be lifted on the point of a pen, and drawn round and round a tumor or across it; eats through the skin in a few minutes. The fissures thus made are to be filled with the paste, renewing the scratching and filling in with the paste every two days. In this way in a week or ten days, a large tumor can be removed without hæmorrhage. It does not harden the parts, and there is no possible danger of hæmorrhage. *It is a valuable caustic to remove tumors of the breast.*

Other Caustics.

Other caustics, as caustic potassa, which deliquesce and spread, require great care and a free use of vinegar after their use.

Nitric acid, sulphuric acid, muriatic acid, do not burn deeply, but are not liable to spread.

Chloride of Chromium.

Chloride of chromium is the most valuable of all caustics, being perfectly painless, and having the remarkable property of uniting with and destroying the cancer-germ. (See *Ozonized Chloride of Chromium.*)

Cancer.

Take a pound of fresh crushed root of blue flag; the same of poke, and of red clover tops, and red oak bark. Mix together, and boil gently for twenty-four hours. Then strain and evaporate down to the consistency of molasses. In order to keep from molding, add one teaspoonful of chloroform to the pint. It is a useful agent to spread on leather and apply as a plaster for the removal of cancers. Very slow in its action, but not painful.

Iodine.

When it is desirable to apply iodine as a caustic, and do not wish to have its stain, add a few drops of liquid carbolic acid to the tincture of iodine about to be used, and it will not stain.

COUGH REMEDIES, OR EXPECTORANTS.

Medicines that increase the secretion from the mucous membrane of the bronchial tubes, or air-passages, and air-cells of the lungs, and facilitate its discharge, at the same time soothe and allay the cough.

Sweet Oil, Lemon Juice, and Sugar.

Take one ounce of sweet olive oil, one ounce of lemon-juice, and one ounce of fine white sugar; beat or shake into a pulp;

put into a teacup, cover, and place on stove, so as to thoroughly dissolve the sugar. Give from a half to a teaspoonful quite often till relieved. *Extremely efficacious in coughs and colds of children.*

Onion Syrup.

Peel one or two red onions, chop up fine, and place in a saucer; cover with an amount of sugar equal in bulk. Cover with a teacup, place on stove, or in oven, until all has dissolved into a syrupy mass. Any piece of onion not entirely dissolved, remove. Give half a teaspoonful very frequently, if bowels are not loose; if loose, more gradually. *It is of great utility in the colds and catarrhs of children.*

Infusion of Lobelia.

Take a heaped teaspoonful of pulverized green lobelia—the plant, no seeds; put in a teacup, and fill up with boiling water. It can be sweetened with sugar or honey. Give half a teaspoonful to a whole teaspoonful every hour or two, or more frequent, in infantile catarrh, so as to cause the phlegm to come up easy; and morning and night one teaspoonful, one after another, till it vomits freely. Infants and young children swallow their expectoration, which is full of bacteria, and gives rise to hectic fever, hence the propriety of thus causing them to vomit. The shape and vertical position of a child's stomach enables it to vomit easily. *Decidedly one of the most useful remedies in infantile catarrh, and fever of young children arising from exposure to cold.*

Bloodroot, Acetic Syrup.

Put three ounces of bloodroot, crushed or pulverized, to steep in half a pint of good cider vinegar for two weeks; then strain off through fine muslin; then add to the half-pint about one and a half pounds of sugar, and boil down about one-third. This should be kept in every family. *One of the very best remedies for pseudo-membranous croup, as it destroys the membrane as fast as it forms.* Administer half-teaspoonful to one teaspoonful repeatedly, one following the other, until relief is obtained.

Lobelia and Bloodroot.

Lobelia and bloodroot may be made into a syrup, by taking four ounces of simple syrup, and adding half an ounce of fluid extract of lobelia, and the same quantity of fluid extract bloodroot, mixing together. Dose will range from a few drops to half a teaspoonful, as needed, in colds, coughs, etc.

Syrup Ipecac.

Take one ounce of the syrup of ipecac, keep it in vest pocket, and when you feel a little tickling or disposition to cough, take

cork out of the bottle, and simply turn it up on tongue, so as just to taste the ipecac; probably not over five or six drops on the tongue in all, but repeat often. In this way there is none placed upon the stomach to offend it.

Ipecac, Tolu, Wild Cherry, Squills, Senega.

Take one ounce each of the syrups of ipecac, tolu, wild cherry, squills, and senega; add five grains of the sulphate of morphia: mix. Dose, one teaspoonful every four hours. *Valuable in irritating, hacking cough.*

Squills and Muriate of Ammonia.

Take four ounces syrup of squills, to which add two drachms of muriate of ammonia: mix. One teaspoonful every two hours. *Exceedingly valuable in chronic bronchitis.*

Bromo-hydric Acid.

Take of simple syrup, six ounces; acid hydrobromici, one ounce. Take half a teaspoonful frequently, dissolved in a little water. *Nothing can excel it in the cough of acute bronchitis with great headache.*

Muriate of Ammonia, etc.

Take of muriate of ammonia, one ounce; chlorate of potass, half an ounce; alum, two teaspoonfuls; capsicum, half a teaspoonful; pulverized bloodroot, one teaspoonful; gum arabic, one teaspoonful. Add the whole to a half-pint infusion of squills or wild cherry, and add sugar to suit the taste. Dose, a teaspoonful every three hours, or more frequent. *Very efficacious in the cough of chronic bronchitis.*

Rosin Weed in Asthma.

Take four ounces of the compound syrup of lobelia; one ounce of the bromide of potassa; half an ounce of the chlorate of potassa; half an ounce of the bromide of ammonium; one ounce of the fluid extract of rosin weed; half an ounce of the tincture of calabar bean: mix. Dose, from a half to one teaspoonful, every three hours, in asthma. *Very efficacious.*

To Sooth a Cough.

Take thirty grains of camphor, pulverized; capsicum, two or three grains; sugar of milk, a drachm; one grain of the sulphate of morphia; five drops of the oil of peppermint: mix. Make into ten powders, and put up in tin-foil. One every hour till the cough has entirely ceased.

Iceland Moss.

Take half an ounce of Iceland moss, boil in a pint of water for fifteen minutes, strain by compression. To this any seda-

tive can be added; or, it can be taken alone for a cough, sweetened to suit.

Syrup of Garlic.

Cut up fine one ounce of garlic; cover it with vinegar; macerate a week, and then strain off. Make into a syrup. Excellent for bad colds in children.

Excellent Cough Mixture.

Take one large teaspoonful of balsam of Peru, one of tolu, and the same of Canada fir. Make them into an emulsion, with a sufficient quantity of mucilage of gum arabic; then add acetated syrup of bloodroot, one ounce; and tincture of lobelia, half an ounce. After mixing them well together, add twelve ounces of the syrup of licorice. Dose, one teaspoonful quite often, till cough is allayed.

For Irritative Cough.

Take camphorated tincture of opium, fluid extract licorice, and alcohol, of each one ounce; syrup of tolu, three ounces: mix. Dose, one teaspoonful repeatedly till cough ceases.

For Bronchitis.

Take four ounces of compound syrup of stillingia, and three drachms of chloride of ammonia: mix. Dose, one teaspoonful three times a day. Or,

Take liquid pitch, one ounce; balsam of tolu, one ounce; oil of turpentine, thirty drops; alcohol, and simple syrup, of each two ounces: mix. Dose, from a teaspoonful to a table-spoonful, as needed. Or,

Take syrup tolu, syrup senega, and fluid extract yerba santa, of each one ounce. Mix and give a teaspoonful as indicated. Or,

Take one ounce of syrup senega; two ounces syrup ipecac; two teaspoonfuls of chloride of ammonia; and three ounces of compound syrup stillingia. Mix all together. Dose, a table-spoonful as required.

For Asthma.

Take tincture of lobelia, tincture of gelseminum, fluid extract sumbul, of each one ounce: mix. Give from ten to thirty drops, as indicated. Or,

Take extract hyoseyamus, extract lobelia, extract grindelia robusta, an equal quantity of each: mix, and make into three-grain pills. Dose, one pill as often as required. Or,

Take fluid extract of sumbul, one ounce; simple syrup, two ounces; bromide potash, bromide sodium, bromide ammonium, of each, two drachms: mix. Dose, one teaspoonful, as required.

Hoarhound Balsam.

Dissolve two ounces each of the extract of hoarhound and

extract of licorice, in half a pint of hot water ; when cold, add one ounce of paregoric ; six ounces of the syrup of squills ; two ounces of the tincture of benzoin ; and ten ounces of honey : mix well, and strain through fine linen. Dose is a teaspoonful frequently. *Very useful for coughs and colds.*

Cough Mixture.

Take of bloodroot, slippery elm bark, coltsfoot, elecampane, spikenard, comfrey root, lobelia plant, snakeroot, of each one ounce ; infuse over night by pouring on the whole one quart of boiling water ; strain off in the morning, and add sugar to make a fine syrup. If this is not desired, then add an equal quantity of brandy to it, and let the patient take a tablespoonful every hour. *One of the best combinations for a cough.*

DIAPHORETICS.

Medicines that promote perspiration, open the pores of the skin, unload the sweat-ducts, remove constriction of the cutaneous capillaries, deplete the blood of its water, cause a revulsion to the surface in a determination of blood, promote absorption, and eliminate morbid matter, or dead diseased germs, from the body. A valuable class of remedies.

Ammonia.

Liquor ammonia acetatis. Dose, one teaspoonful, in water, frequently. *Excellent in tonsillitis, pneumonia.*

Dover's Powder.

Take thirty grains of Dover's powder ; divide into six powders. Take one every two hours in an infusion of pleurisy root or boneset tea. Stop their use when the patient is bathed with sweat, but continue the tea as a drink. Use whenever a gentle diaphoretic is indicated.

Serpentaria Compound.

Compound tincture of serpentaria. Dose from a half to a teaspoonful, in sweet marjorum tea ; administer frequently. *Of great utility in measles, scarlatina, small-pox, and whenever a gentle diaphoretic is needed.*

Infusions of Asclepias.

Boneset, crawly, sweet marjorum, mullein, one ounce of each to one pint of water, are excellent diaphoretics. Drink freely ; best warm.

Balm Tea.

Balm leaves, one ounce ; one heaped tablespoonful of sugar ; lemon juice, one ounce ; infuse in one pint of boiling water for twenty minutes. This forms a useful drink in colds to get up

a gentle perspiration; best to be drank warm before retiring to bed. Or,

Infuse one ounce of balm leaves, elder flowers, marsh mallow, spearmint, and arnica flowers, with half an ounce of anise seed, in boiling water.

Sweating Drops.

Take one-fourth of an ounce of camphor, saffron, ipecacuanha, opium, and Virginia snakeroot; Holland gin, three-fourths of a pint; let them steep for seven days. Dose, ten to twenty or thirty drops, repeated until free perspiration takes place. The bowels are best to be moved before its exhibition. *It has great efficacy in breaking up fevers, colds, rheumatic attacks, congestive chills etc.*

Sweating Powder.

Take one ounce of pleurisy root; one ounce of boneset; one ounce of crawley root; half an ounce of lobelia herb, and the same of skunk cabbage; powder very fine, mix them together, and keep them in a stoppered bottle. Dose, from one-fourth to one-half teaspoonful in warm tea, and repeat dose every hour till free perspiration is induced. *In fevers, inflammations, influenza, pleurisy, colds*, this powder is invaluable. It subdues irritation, relieves difficult breathing, lowers the pulse, gives rise to free perspiration, and promotes sound sleep. If given early, it will arrest lung fever.

Jaborandi.

This is the prince of all diaphoretics, possessing most extraordinary properties in its action upon the skin, whose action it entirely revolutionizes, even rousing into action the matrix of the hair on that gland. The fluid extract is the best form for administration, in from twenty to sixty drops, repeated as indicated. With this remedy the patient must not drink, and as fast as the saliva accumulates in the mouth, it should be spat out, not swallowed. Its action is unfailing, very positive in causing the most drastic, copious perspiration. It is of great utility in all fevers, pneumonia, pleurisy, peritonitis, Bright's disease, acute rheumatism, bronchitis, etc. Its alkaloid, pilopine, in one-fourth or one-third of a grain dose, is even more powerful, breaking up attacks of asthma, and inducing perspiration at once.

Some claim that pilocarpine will produce a luxurious growth of the hair, and also change its color from a blonde to a deep-black. We have used the drug, both by the stomach and skin (hypodermically), and have failed to detect such a phenomenon. It operates well in rousing up the secretion of milk, when fennel seed, and castor oil, and calabar bean, even, fail.

Sage, Rue, and Balm Teas.

Those three garden herbs, if made into a tea and administered, will produce perspiration, or sweating. They are invaluable in fevers; to flavor, a little lemon juice can be added.

Sweating Powder.

Take one teaspoonful of pulverized ipecac, same of opium, wild turnip, skunk cabbage, and cayenne pepper: mix. Dose, quarter of a teaspoonful every two or three hours. Of great utility in *colds, coughs, congestion of lungs, and difficulty of breathing.*

DIFFUSIBLE STIMULANTS.

Diffusible stimulants excite the circulation, have no influence on the nervous system, but are invaluable in all states of prostration or collapse, when the system is shocked or devitalized. They simply aid a renewal of life in shattered, or debilitated states of the system.

Brandy.

This is a diffusible stimulant, and should be given in tablespoonful doses, alone, or with water, or white of egg, frequently repeated—that is, every few minutes, until the result is obtained—increased or diminished heat, pulse and respirations.

Capsicum.

An excellent, diffusible stimulant. The common powder, added in suitable quantities, to warm sweet milk, and drunk freely; the compound tincture of myrrh, or No. 6, added to good, strong, hot coffee. Those are two elegant forms of administration. Still it may be given with best success in any form. *A remedy of great value in prostration, lingering labor, paralysis, exhaustion.*

Administer at suitable intervals and proper doses, from half to a teaspoonful to half a pint of warm milk; a wineglassful every little while, or, if No. 6: a teaspoonful to a teacupful of hot coffee, thrice daily, or more frequent.

Ammonia.

The aromatic spirits of ammonia is probably the best form for administration—small doses frequently repeated, say ten to thirty drops, in water; carbonate of ammonia in from five to ten grains, at proper intervals apart.

Prickly Ash.

The prickly ash, or the fluid extract of xanthoxylum, is a mild, but much over-rated, diffusible stimulant. It cannot be depended on in great emergencies, like capsicum.

Musk Root.

This is an elegant remedy. It can be administered freely in hot tea.

Quinine.

Quinine with phosphate of ammonia *makes an excellent stimulant.*

Cajeput Oil and Cloves.

Two or three drops of each beat into an emulsion, with sugar, and swallowed either in a capsule or in a piece of jelly. *A good stimulant for colic.*

Chloroform.

A few drops of chloroform in water is more reliable.

Hot Drops.

Take two ounces of gum myrrh; one ounce of capsicum; and two ounces of peach kernels, and add the whole to one pint of alcohol. Let it steep for two weeks. Dose, a teaspoonful in a little warm tea, three times a day. It makes a good local application in any painful affection. *Good for bruises, sprains, stiff joints.*

Composition Powder.

Take two pounds of finely pulverized bayberry bark; one pound of hemlock bark; one pound of ginger; two ounces of cayenne pepper, and two ounces of cloves. Mix them together. Put from one-half to a teaspoonful in a cup of boiling water; sweeten if desired, and as soon as cold, drink the contents. *An excellent remedy in weak stomach and dyspepsia.*

For Intoxication.

Take two ounces of tincture of valerian; two ounces of aromatic spirits of ammonia; two ounces of fluid extract of skullcap; two ounces of tincture of capsicum: mix. One table-spoonful frequently. *Excellent in habitual inebriation.*

The same could be improved by the addition of coca and musk-root.

For cheapness, the tincture of the valerianate of ammonia and capsicum, in an infusion of skullcap, make an excellent formula for steadying up the shattered nerves.

For Bites of Rabid Animals, Venomous Reptiles, Insects, Ivy, Sumach.

If there is a wound, the immediate treatment, in all cases, is as follows: A ligature to be applied on the cardiac side of the wound, to prevent absorption. The wounded, or bitten part, should be cupped, or incised, and free bleeding encouraged with hot water. Then the wound should, if large, be cauter-

ized with caustic potassa, and then vinegar applied freely to neutralize the action of the caustic; or, if small, it could be dressed with muriate of ammoniate; if the caustic is applied, follow with lobelia and linseed meal poultice; if these means are not handy, don't wait, but chop up fine, either garlic or onions, and beat into a paste, with common salt, and apply a good thickness. Change every three hours. If it is simply an insect bite, or sumach, a saturated solution of muriate of ammonia, should be kept continually on the part, and kept wet.

Of internal remedies, diffusible stimulants are the best: for the bites of animals, compound tincture of ammonia, or aromatic spirits of ammonia, in doses of two drachms to the ounce of water, repeated frequently; and if it is a reptile, or snake, brandy is always about, and most reliable, but must be given in repeated doses, till intoxication is induced. For ivy and sumach, no internal remedies are needed, if the muriate of ammonia is applied early. *For scratches, abrasions, in teeth extracting, the muriate of ammonia is excellent, but its antiseptic properties are greatly increased by adding tincture of iodine to it.*

Prickly Ash Berries.

Either the juice of the root, or the prickly ash berries steeped in whisky, make an excellent diffusible stimulant.

For Cramp Colic.

Take one pint of alcohol; half an ounce of gum guaiac; a quarter of an ounce of gum camphor; a quarter of an ounce of cayenne pepper: mix. Let it steep for two weeks, during which time shake once or twice daily; then filter or strain. When filtered, add one ounce of chloroform. Very efficacious in cramps, internally and also locally.

DIURETICS.

Diuretics are remedies that increase the flow of the urine. They act in various ways. Alkaline diuretics wash out, flush the convoluted tubes of the kidneys; astringents stimulate, but brace and tone; others increase the solid constituents, etc.

Sweet Spirits of Nitre.

Ten to twenty drops in water, or better still, in parsley-root tea. *Operates well when the kidneys require stimulating.*

Infusions.

Infusions of squills; broom-tops; parsley, both root and leaves; asparagus tops; juniper berries; buchu; uva ursi; queen of the meadow; pariera brava; cleavers; are most reliable diuretics. As none are poisonous, take a handful, and pour on it a pint of water, and infuse over night, and drink freely

when cold. Cream of tartar and nitre can be added to them. They can be preserved by bottling up; and before corking, add half a teaspoonful of chloroform, to preserve them. The practice of boiling asparagus, an excellent diuretic, and throwing out the water, is throwing away the gold and retaining the rubbish. It is like cooking fish in fat, which attracts all the phosphorus, leaving the fish a dry, non-nutritious mass.

Digitalis.

Have half a pint of water boiling briskly, and when so doing, add one or two grains of freshly pulverized digitalis leaves; boil a few minutes; then let it infuse half an hour, cool, strain. A wineglassful every two hours. Better to make fresh every morning. This is the great diuretic; it prepares the kidneys for the evacuation of immense quantities of water. Its use, in from three to five days, must be followed with other diuretics, as buchu and cream of tartar; squills and nitre. *Infusion of digitalis is the ideal of perfection of a drug in all dropsies.*

Iron, Nitre.

Take four ounces of camphor-water; one ounce of tincture of iron; and half an ounce of saltpetre: mix. A teaspoonful in water every three hours. *In dropsy, with anæmia.*

Cream of Tartar and Cubebs.

Take one ounce of pulverized cubebs, and one ounce of cream of tartar: mix. One teaspoonful every three hours in water, or gruel. *Useful in dropsy, and also in gonorrhœa.*

Cider, Cream of Tartar, and Nitre.

Take a pint of hard cider; one ounce of cream of tartar; and half an ounce of saltpetre: mix. Take a wineglassful morning and night, and oftener. *Efficient diuretic; use in all dropsies.*

Sulphur, Cream of Tartar, Gin.

Take one pint of good Holland gin; one ounce and a half of sulphur; and one ounce of cream of tartar: mix. Shake well; a small wineglassful morning and night. *Very useful in dropsies about the change of life, or where there is suppression of the menses.*

Buchu, Uva Ursi, and Borax.

Take a strong infusion of buchu and uva ursi—say, a pint; take a wineglassful every three hours; and just as about to take, add from ten to fifteen grains of pulverized borax to each wineglassful. If no rash comes out on the skin from the use of the borax, it may be continued; but if the borax rash appears, it must be diminished down to five grains. *Very useful in catarrh of the bladder.*

Nitro-Glycerine.

Make, or ask the druggist for, a one per cent. solution, which administer in obstructed kidney, or where it is caving-in in Bright's disease. It causes a disappearance of the albumen, and increases the flow of urine. Dose, seven to twenty drops every two hours.

Balsam Copaiba and Cubebs.

Take one ounce and a half of mucilage of gum arabic, to which add one ounce of balsam of copaiba; one ounce of tincture of cubebs; one ounce of fluid extract of kava kava; half an ounce of sweet spirits; tincture of iodine and tincture of opium, half a drachm; compound tincture of lavender, one ounce; mix. Dose, a teaspoonful, thrice daily, or every morning and night. *Very excellent in catarrh of the bladder and gonorrhœa.*

Golden Tincture.

Take one ounce each of gum myrrh, gum guaiacum, and balsam of tolu; two ounces of balsam copaiba; oil of hemlock, an ounce and a half; one ounce of wintergreen; one pint of alcohol, ninety-five per cent.: mix, and steep about two weeks. Dose, one teaspoonful twice or thrice daily. *Invaluable in kidney affections; braces and astringes.*

Haircap Moss.

Without a doubt, haircap moss is the great diuretic. It is more powerful and effectual than all known drugs. In its use in dropsy, there is no difficulty in the kidneys secreting from twenty to forty pounds of water in the twenty-four hours; and, although they do that much work, they are toned and strengthened thereby, as it astringes and braces like *urva ursi*, buchu, cleavers, and queen of the meadow. It is best used in the form of fluid extract; the dose being from one to two teaspoonfuls three times a day. *Unexcelled in all dropsies.*

Couch Grass, Cleavers, and Uva Ursi.

Make an infusion, by taking one ounce of each, and adding a quart of water, letting it infuse over night; strain, and add half an ounce of sweet spirits of nitre. Before bottling, add half a teaspoonful of chloroform, to preserve. A wineglassful every three hours. *Good where the kidneys are sluggish.*

Shepherd's Purse.

A strong infusion is quite valuable in dropsy, especially in the abdominal form.

Stoppage of Urine.

Take green spearmint, blue flag, uva ursi, of each four ounces; cover with Holland gin; steep two weeks, then strain. To each

half pint, add one ounce of sweet spirits of nitre, and one ounce tincture of green root gelseminum. One teaspoonful every three hours in stoppage of urine.

EMETICS.

Emetics are medicines which, when taken into the stomach, or applied to the skin, are taken up by the blood and nerves, and irritate the co-ordinating chemical centre at the base of the brain; which irritation is carried by the pneumogastric, vagus, and other nerves, to the stomach, diaphragm, and abdominal muscles, which causes contractions of the stomach and evacuation of its contents. In addition to vomiting, they cause nausea, muscular relaxation, excite the functions of the liver, skin, and lungs, and often have a purgative action. Never to be given when there is acute inflammation of stomach, bowels, or peritonæum, or where there is a determination of blood to the brain. In all cases their use should be preceded by copious alkaline drinks, so as to neutralize the acid condition of stomach, and permit of their rapid absorption and action.

Wine of Ipecac.

First, persuade patient to drink some warm fluid, as water and bicarbonate of soda—half a pint of the water to one teaspoonful of the soda; then administer a half teaspoonful of the wine of ipecac, and repeat every few minutes till free vomiting takes place.

Syrup of Ipecac.

Use in the same manner.

Pulverized Mustard and Salt.

Take one heaped teaspoonful of mustard and dissolve it carefully in a little water, so that there will be no lumps; then increase the water to half a tumblerful. Dissolve one tablespoonful of salt in a teacupful of tepid water, which drink at once, and in a few minutes follow with the mustard.

The above three forms of emetics are very mild, well adapted for children, women, and elderly persons, and are useful whenever we desire to remove the contents of the stomach. The quantity of each may be increased. If possible, get an abundance of warm fluid in the stomach before their administration.

Lobelia.

Take one heaped teaspoonful of the pulverized plant (called green lobelia—no seeds); put in a teacup; add a tablespoonful of water, in which mix it thoroughly; then fill up teacup with boiling water, and when cool enough to drink, begin its administration; but before, have the patient drink from half to a pint

of tepid water with a heaped teaspoonful of bicarbonate of soda dissolved in it. Begin the lobelia in this manner: First, a mouthful, which swallow; in one or two minutes more, another swallow; and so on until the entire teacupful is used. If, however, the patient feels greatly nauseated and like to vomit, let him drink it down at one draught. More water with soda can be drunk, and more lobelia given, but the teaspoonful is usually enough. The efficacy of this emetic can be greatly increased by adding either a little composition powder, or bayberry, or capsicum; or putting the lobelia into half a pint of boneset tea, instead of water, or any of those agents in infusion given freely to drink before giving the emetic. In cases of poisoning, pulverized animal charcoal should be administered freely besides the above. This is the most efficient of all emetics, indicated at the commencement of all fevers, disorders of the liver, and whenever an emetic is useful. Has an excellent effect on the nervous system.

Tincture of Lobelia.

Never use that of the drug stores, as it is made from the lobelia seed, which is very dangerous to some persons. For domestic purposes, take two ounces of the seed and four of the plant, not pulverized; put into a jar and cover with common whiskey (about a quart); cover carefully with a piece of bladder, and let it steep a month; then strain off, bottle, and label. When an emetic is required, administer either the tepid water and carbonate of soda, or the infusion of capsicum, composition, bayberry, boneset, or some other tea, with the soda, as above; then give this tincture in teaspoonful doses every five minutes, till free vomiting takes place. This is the very best method. Besides, the above makes a preparation that will readily keep twenty or thirty years, and all the time be growing better.

Compound Powder, or Tincture of Lobelia.

Compound powder, or tincture of lobelia, which is made up of lobelia, bloodroot, skunk cabbage and capsicum, is sometimes used as an emetic, but it makes a better antispasmodic. If used, give in same doses as the lobelia powder, or tincture. Or another method: Take one tablespoonful pulverized lobelia-seed; same of the herb; same of the pulverized blood-root; and the same of ipecac. Mix thoroughly together. Give one teaspoonful every twenty minutes, patient drinking freely of tepid water with bicarbonate potassa. Keep along till patient vomits freely. This is invaluable for cleansing the stomach, imparting new life and vigor to the body.

There are a large number of emetics, but for all practical use the above are sufficient; kind and gentle in action, and re-

liable; whereas such remedies as antimony, copper, zinc, and tobacco, which are extensively prescribed, are dangerous in an extreme degree, and should not be administered.

EMMENAGOGUES.

Emmenagogues are a class of remedies that promote the menstrual function. Mostly all act through the circulation, and reflexly on the uterus. Some act by causing apoplexy of the uterine and rectal plexus of vessels; others by stimulating the mucous coat of the uterus, while another class act on the brain and cord. In all cases they are best given a few days before the monthly period, and if the desired result is not obtained at the regular time, leave them off till next period. They should never be given during pregnancy.

Tansy.

The oil of tansy, pennyroyal, sabinae, etc., are very dangerous drugs to use either in domestic practice or from the hands of a physician. So we do not endorse their use, on account of their toxical character.

Parsley Root.

Apiol, an extract from this root, is a gentle, safe emmenagogue. The dose is from five to ten grains three times daily.

Compound Betin Pill Ozonized.

This is the most reliable of all emmenagogue remedies. It never fails in its action, and should be generally used. (See *Ozonized Remedies*.)

Acetic Tincture of Iron,

In doses of half a teaspoonful thrice daily, in water, is very valuable in suppression of the menses, with anæmia.

An excellent method of preparing an acetated tincture of iron is simply to take several pounds of ordinary lath nails; cover them with good, sharp, cider vinegar; then cover carefully; let them steep from two to four weeks. Filter through fine muslin; bottle; keep well-corked. Dose, one teaspoonful in water thrice daily.

Borax and Sabinae.

Take ten grains of pulverized borax and fifteen grains of pulverized sabina; make into one powder, and take that quantity three times a day. Often useful, but the large dose of borax often causes a rash to appear on skin. This can, however, be prevented, by not using it over three days or so, before the period. In ordering it from the druggist, say one hundred grains of the borax and one hundred and fifty of the sabine, and when you get home divide it into ten powders, which are sufficient for the three days.

Cotton-Root Bark.

The outer rind of the bark of the root of freshly dug cotton-root is a most reliable emmenagogue. The dry root and fluid extracts that we find in the northern drug stores are perfectly inert, and never should be used, as it is simply throwing money away. The root should be dug, washed, dried, the outer rind cut off and made into a strong tea, and drunk freely for a few days. The infusion can be preserved by adding half a teaspoonful of chloroform to the pint. Its use should be stopped the moment the flow is perceived.

Aloes, Macrotys.

Take equal parts of the extracts (solid) of macrotys, sabinæ, pulverized aloes and ergotine: mix. Divide into three grain pills. Dose, two three times a day.

Take of macrotin, caulophyllum, socrotine, aloes, iodide potass, mandrake, equal parts: mix. Make into three-grain pills. Dose, two three times a day.

Blue Cohosh.

Take of the fluid extract of blue cohosh; fluid extract ergotine; fluid extract of water-pepper; of each, one ounce; then cut one drachm of the oil of sabinæ in an ounce of alcohol at 95 per cent.; shake well until the oil is thoroughly mixed; then add all together: mix. Dose, about half a teaspoonful thrice daily.

Iron Pills.

Take twelve grains of sulphate of iron; six grains of powdered aloes; six grains of the extract of sabinæ and twelve grains of white pine turpentine: mix. Dose, one at bedtime. Or, take of sulphate of iron, twenty grains; aloes, twenty grains; extract of sabina, twenty grains; powdered cloves, five grains; Venice turpentine to make a mass, and divide into twenty pills. One pill three times a day.

Aloes and Sabinæ.

Take one drachm of aloes; pulverized sabina; blue cohosh; gum myrrh; borax and pulverized tansy; and add half an ounce of cayenne pepper: mix. Make into three-grain pills; one three times a day. If the bowels or liver are torpid, add the same amount of mandrake as the aloes.

Baths.

The Turkish, Russian, vapor, and ordinary warm baths are of great utility as emmenagogue remedies; so is the hot mustard foot-bath, hip-bath, injecting vagina with hot water, and applying mustard to the nipples to excite the activity of the uterus, especially when resorted to with the compound Betin pill.

ENEMATA.

The act of throwing injections into the rectum, or lower bowel, to facilitate a passage of the bowels, increase the action of a cathartic, to get rid of great fæcal accumulation, or to relieve the bowels in piles and enlarged prostate, is of great service. As regards the nutrition of the body by this means, little need be said; the practice is altogether one in which gross ignorance and superstition are blended. The rectum is a mere receptacle for the waste matter, and has no lacteals to take up the blood elements to carry to the lymph canals for nutrition. Enemata, as a rule, should be emollient, consisting of beef tea, gruel, castor oil and glycerine, sweet oil, etc. When used for constipation, to establish the law of habit, they should be employed immediately after the morning meal, and may consist of plain cold water. If used during labor to relax the rigid os, or neck of the uterus, they should be warm, and contain lobelia and belladonna.

Simple Enema.

Take of common salt, one ounce; barley-water or beef tea, half a pint. *Good in constipation and seat-worms.*

Six ounces of warm olive oil; soft soap, and warm water; castor oil and infusion of rue; laudanum and starch, one teaspoonful to pint of liquid starch; infusion of lobelia, in rigidity of the neck of the uterus.

Astringent Enema.

Take half a pint of starch, thin enough to inject; tincture of kino, half an ounce; laudanum, half a teaspoonful. Then add thirty drops of spirits of turpentine: mix. Give per rectum, twice in the twenty-four hours, in the diarrhœa of typhoid fever.

Narcotic Enema.

Take four ounces of liquid starch; one teaspoonful of laudanum; and fifteen drops of tincture of belladonna: mix. Administer to relieve a rigid os uteri, the pain of cancer of the uterus, etc.

Turpentine Enema.

Take of spirits of turpentine, half an ounce; mucilage of gum arabic, four ounces; and add decoction of barley, two or three ounces: mix. *Very useful in fits, suspended animation.*

Other Enema.

Almost any infusion, or decoction, may be used, such as *beef tea*, for nutrition; *bayberry*, for ulceration of rectum; *wormwood*, for pin-worms; *oak bark*, for falling of the rectum; *chestnut leaves*, for piles; and other remedies to meet special indications.

When it is desirable that they be retained, let them be small, from one-half to a teacupful.

FOMENTATIONS.

Hot fomentations are of great utility in practice of medicine; very useful applied to the shaved scalp in inflammation of the brain, in relieving the intolerable headache. Besides, they are often of great utility in arresting hæmorrhage, and their extraordinary power is very marked when applied, scalding hot, over the heart in suspended animation from anæsthetics, even to vesication. Generally speaking, their efficacy depends greatly upon the presence of medicinal agents, as the addition of worm-wood to boiling water in fomenting the knee-joint in white swelling; as oak bark, alum, and chamomile flowers, to weakened parts; as infusion of hops in painful swellings; as the infusion and fomentation of arnica flowers and marigold plant in black eyes, and other ecchymosis; as infusion of poppies and elder flowers to sore eyes; as the fomentation of the perinæum in tardy labor with infusion of lobelia; as the fomentation of infusion of cayenne pepper and mustard in parts when a stimulant is required; and so on with other remedies. In every process of fomentation there should be two flannels—one applied, the other soaked in the almost boiling fluid, which should be wrung out and applied as soon as the one that is applied has become cold. Heat applied in this manner is productive of vitality, promotes a renewal of life in the part to which it is applied, and by this action contractility of the weakened blood-vessels is induced, absorption of effused fluids promoted. Hot fomentations are of far greater efficacy in violent uterine hæmorrhage than cold, and are now generally resorted to, as being more conducive to aid a renewal of vitality.

GARGLES.

Gargles are used either to allay irritation, or heal ulceration, or destroy the disease-germs in the mouth, gums, throat, fauces, such as are present in *aphthæ*, *scarlet fever*, *diphtheria*, *syphilis*, *tuberculæ*, *mercury*.

Vinegar and Salt.

Take of cider vinegar, half a pint; common salt, two tablespoonfuls; mix. One or two tablespoonfuls in half a teacupful of warm water. *Use as a mouth wash and gargle in all forms of sore throat.* If patient is an adult the addition of a small amount of capsicum will render it still more efficacious.

Muriatic Acid Gargle.

Take half an ounce of muriatic acid; one ounce of honey, and ten ounces of a good strong infusion of golden seal: mix.

Swab tonsils, uvula, and fauces with. *Very useful in chronic tonsillitis, dropping of the palate, or sore throat generally.*

Sage Tea, Honey, and Borax.

Make a pint of strong sage tea; keep it in an earthen tea-pot at side of fire; add to it two or three ounces of honey and one ounce of borax. *Use as a mouth wash and gargle in sore throat of all kinds, nursing (aphthæ), syphilitic, mercurial. Gargle frequently.*

Sulphur Gargle.

One teaspoonful of flowers of sulphur to half a tumblerful of tepid water. Use every two hours. *Effectually destroys the germs of diphtheria.* Or, blow the sulphur through a tube on the diphtheric membrane, and then gargle with the same.

Chlorate of Potassa Gargle.

Put an ounce of chlorate of potassa in half pint of water. Take of the solution three tablespoonfuls to the same quantity of hot water, and gargle every two or three hours, *in all forms of sore throat, scarlatina, diphtheria.*

Golden Seal.

Take a strong infusion of either golden seal, or gold thread, or bayberry, say a pint; borax, one ounce: mix. Keep warm in an earthen teapot. *Very serviceable in inflammation, ulcers, or abrasions about the mouth.* Use every two or three hours.

Borax Gargles.

Take half an ounce of borax; tincture of myrrh, one ounce: infusion of either gold thread or Peruvian bark, eight ounces; mix. *Excellent for removing the soreness of the gums after extraction of teeth, or in ulceration about mouth and fauces.*

Take of borax half an ounce; mix, or beat it up in one ounce of honey. Wash mouth out with plain water. Then take a camel's hair brush and paint over all ulcers, abrasions, about four times a day.

Take half an ounce of borax, one ounce of syrup of squills, and half a pint of water—or what is better, infusion of bayberry. *Use as a gargle in chronic inflammation of the fauces.*

Borax and Wild Indigo.

Make a strong pint infusion of wild indigo, and add to it half an ounce of borax. In order to keep infusion fresh add half a teaspoonful of chloroform to the entire quantity: mix. *Of great utility as a wash, or gargle when great fetor of the mouth, or breath exists.* Used several times a day.

Tannic Acid Gargles.

Dissolve thirty grains of tannic acid in one ounce of alcohol,

and add to half a pint of camphor water. Use three times a day, and before using, paint the gums with the following:

Tannic acid, one drachm; tincture of myrrh, half an ounce; alcohol, one ounce: mix. *In scurvy of the gums, loosening of the teeth, or general sponginess, it is of great service.*

Alum and Myrrh.

Dissolve one teaspoonful of alum in one ounce of tincture of myrrh, and then add two ounces of water. Use thrice daily. *Invaluable in loose teeth, spongy gums.*

Chlorinated Soda Gargle.

Mix half an ounce of liquor chlorinated soda with five ounces of water. First wash mouth and throat with tepid water, *then use one tablespoonful of the above thrice daily in bad syphilitic, or mercurial sore throat.*

Potassium Permanganate Potassa Gargle.

Dissolve half an ounce of permanganate of potass in four ounces of water that has been boiled. Then take a half tumbler of tepid water, and add in twenty or thirty drops or more until it is a good violet color. Use frequently. *Excellent in diphtheric ulceration and all forms of malignant sore throat.*

Iodine Tincture Gargle.

Drop thirty drops of tincture of iodine into half a tumbler of water, and use in the above manner and for the same diseases. The tincture of iodine will vaporize by holding the bottle in the warm hand, and it can be inhaled with the greatest advantage in bronchitis and consumption, by holding a small bottle of it under the nose. *It is a good antiseptic. If it does not excite coughing use often.*

Sulphite of Soda Gargle.

Make a strong solution—say, one drachm of the sulphite of soda to one ounce of water. With this paint all the ulcers on the tongue, inside of the cheeks and throat, four times a day. Then add one teaspoonful of the sulphite to one tumbler of tepid water, and gargle well. *Of great utility in all forms of ulceration of mouth and throat.*

Potassium Chlorate and Tannic Acid.

Five grains each in half a teacupful, or more, of sage tea. The two ingredients must not be rubbed together in a dry state, as they will explode; no danger in water. *Repeat often.*

Soothing Gargle.

Take mucilage of gum arabic, six ounces; tincture of myrrh, half an ounce: mix. Add a teaspoonful to half a teacupful of infusion of bayberry, and use as a gargle.

Other Gargles,

Such as a solution of common salt, makes a valuable gargle in inflamed sore throat. A solution of alum is also valuable in falling of the palate and tickling cough. Infusion of gold thread, when the throat feels raw. Infusion of capsicum is the *best stimulating gargle to all weak throats.*

Sage Tea and Honey.

Sage tea and honey make an excellent gargle; or alum, or borax added to suit the condition.

HYPODERMIC MEDICATION.

The cellular tissue of the body is often a better medium for the administration of remedies than the stomach. In resorting to this method, select a portion of the body in which few veins exist, as over the shoulders or nape of neck, and in all cases use pure alkaloids in solution. It is performed as follows: Raise the skin between finger and thumb, and, with a rotatory movement, burrow the tube of the syringe into the cellular tissue at least half an inch. Then fill the syringe with the remedy prepared, screw it on, and press the piston so as to inject the required quantity. It will form a small, baggy swelling. Then withdraw the syringe with a rotatory movement, and for a moment or two press point of index finger over the orifice in the skin, so that it has time to contract. *Never use in children, nor in acute disease, and very guardedly in women.*

Morphia.

Either the sulphate or acetate of morphia are perfectly soluble in distilled water. Dose for injection, about one-quarter of a grain. *Useful in neuralgia, in delirium tremens, for sleep, and to rouse the patient in apoplectic fits.*

Atropia.

One-eightieth of a grain of the sulphate of atropia. *Useful in intestinal obstruction, asthma, tetanus, neuralgia, chorea.*

Sulphate of Quinine.

For hypodermic injection prepare the following: Take thirty grains of quinine; fifteen grains of tartaric acid; and add both to one ounce of distilled water to dissolve. Of that take thirty drops, and inject that much every two hours, for three times, before a chill. In the above form it gives rise to no pain nor abscess. For hypodermic use, it is best not to dissolve in any other acid; for if we do, we may expect irritation and abscess. Those injections must be prepared from the pure alkaloid and used with caution, as none of the medicine is lost, altered, or diluted with stomach liquids.

Pilocarpine.

Take one-third of a grain, and dissolve in distilled water, and inject. *It excites immediate diaphoresis, affords instant relief in asthma.*

INHALATIONS.

Although the bronchial mucous membrane is a poor absorbent, still it can be made use of to a limited extent in morbid conditions peculiar to itself, as catarrh, ulcerated sore throat, chronic laryngitis, loss of voice, bronchitis, tubercle. The remedies may be placed in a pitcher of hot water and inhaled by breathing the steam or vapor. Although it is much better to use a steam vaporizer, or atomizer, by which the remedy in a fine state of subdivision, can be breathed. The best class of remedies are antiseptics, as carbolic acid, tincture benzoin, borax, ammonia, sulphuric acid, iron, etc. They should be used twice or three times a day, patient sitting, if able, and taking deep, prolonged inspirations. The first inhalations should be short if from an atomizer, so that the patient becomes accustomed to their use. Afterwards they can be continued for longer periods. It is best to select occasions when the stomach is empty, so that the diaphragm can descend well. The following table will give the quantity of drug to an ounce of distilled water, with the diseases in which they are most useful:

Carbolic Acid.—One to ten grains: Bronchitis, ulcerated sore throat, chronic laryngitis, consumption.

Tincture Benzoin.—Half an ounce to the same quantity of water; or thirty grains of benzoic acid to the ounce of water: Consumption, as above.

Borax.—Five to twenty grains: Sore throat, bronchitis, laryngitis chronic.

Chlorate Potass.—Five to twenty grains: Sore throat, diphtheria, scarlatina, bronchitis.

Ozone et Chlorine.—From five to thirty drops: Invaluable in syphilitic sore throat.

Pernanganate Potassa.—Two to five grains: Syphilitic sore throat, chronic bronchitis, ozæna, diphtheria, consumption.

Sulphuric Acid.—One to five drops: Same diseases.

Chloride of Gold and Soda.—Two grains: Invaluable in all inflammations of the mouth and throat.

Aqua Ammonia.—Half ounce to one of water; or in a pitcher of hot water: Good in cases of loss of voice.

Sulphate of Alum.—Five to twenty grains in hemorrhage and profuse secretion from the bronchi.

Tannic Acid.—From five to twenty grains: Same as the above.

Sulphate of Hydrastis.—Five grains: Invaluable for healing ulcers on the bronchial mucous membrane.

Sulphate of Sanguinaria.—Five grains in chronic catarrhal affections, œdema of the glottis, laryngeal ulceration.

Chloride of Ammonia.—Five to ten grains: Excellent to promote expectoration in capillary bronchitis.

Many other remedies might be enumerated, but we would not recommend morphia, atropia, aconitine, hyoscyamine, or other alkaloids to be used, as we are unable to say how much ulceration exists in the bronchi in those affections; consequently no accurate rules can be laid down for a dose in an atomizer. The value of warm, moist air, alone, in bronchial affections, can never be overestimated, as its inhalation very greatly diminishes the amount of oxygen present, and renders the air breathed less irritating to the air-cells of the lungs.

Iodoform.

Dissolve two drachms of iodoform with sulphuric ether, so that there be no sediment. To that solution add two drachms of chloroform, and two drachms of alcohol, and ten grains of carbolic acid: mix, shake well. Put half an ounce of the mixture into a half-ounce bottle, and smell by the nose very frequently. *Of very great efficacy in catarrh, or cold in the head. Good for headache.*

INUNCTION.

Inunction consists in the rubbing into the body some oleaginous body, medicated or otherwise.

In performing this, the body should be first thoroughly bathed or sponged with warm castile soap and water, well dried, rubbed with the dry hand, and then the substance rubbed in.

Inunction of warm olive oil—say, from four to six ounces every evening—promotes nutrition, and is valuable in all wasting diseases, as lung consumption, tabes mesenterica, etc.

Inunction of warm olive oil, with a few drops of oil of eucalyptus, not only soothes the skin, smothers and destroys the germs, which are chiefly to be found in the desquamation, and thus prevents the spread of the disease, besides it is valuable to diminish reflex irritation.

Inunction of warm olive oil, with a greater excess of eucalyptus, is of great efficacy in typhoid fever, not only in destroying the germs, the factor of the fever, but it lowers heat, diminishes pulse and respirations.

Inunction of tartar emetic ointment into the abdomen in peritonitis, is retrograding to germ development, and is thus curative in this fatal disease.

Inunction of various medicated ointments, to promote the absorption of swellings, the discussing of tumors, are of utility.

Inunction of olive oil, thymol, and chloroform is of great benefit in deep-seated parasitic disease of the skin.

Inunction of antiseptic oleaginous bodies, as oil, camphor, menthol, turpentine, are of value in germ diseases.

LINIMENTS AND OINTMENTS.

Tincture of Cantharides and Borax.

Take one pint of bay rum; one ounce of muriate of ammonia; one ounce of the tincture of bloodroot; two of the tincture of lobelia; two of the tincture of cantharides; and one of borax: mix. Or,

Take aromatic spirits of ammonia, one ounce; glycerine, two ounces; tincture of cantharides, half an ounce; rose-water, half a pint: mix. *Where the hair is falling off, wash the scalp night and morning, dry well, then use either of the above.*

Belladonna, Muriate of Ammonia, and Iodide of Potass.

Take one ounce of belladonna ointment; two drachms of iodide of potass; and two drachms of muriate of ammonia: mix. *Excellent to absorb tumors or swellings; but if applied to the female breast during the period of nursing, it will at once arrest the secretion of milk.*

Iodide of Lead.

Rub up one drachm of iodide of lead in one ounce of belladonna ointment. *This is excellent in painful swellings. It can be gently rubbed in, or spread on linen, and applied.*

Iodide of Cadmium.

Take a drachm of iodide of cadmium, and add it to one ounce of belladonna ointment. *This is much more efficient in decreasing swellings, indurations, enlargements, than iodide of potassa. It is best both to rub it in and apply on a cloth three times a day.*

Iodide of Sulphur.

One or two drachms to the ounce of vaseline ointment: mix. *Makes an efficient remedy for the destruction of the cryptogam of barber's itch.*

Other Ointments.

Stramonium ointment, useful in neuralgia and indurations.

Aconite	"	"	neuralgia.
Veratria	"	"	erysipelas.
Citrine	"	"	ophthalmia tarsi.
Iodine	"	"	discutient.
Sulphur	"	"	parasitic disease.
Carbolic Acid	"	"	" "
Poke Root	"	"	discutient.
Lobelia	"	"	"

Sulphuric Acid Ointment.

In making the sulphuric acid ointment, it should be made different strengths, to suit the disease and skin of the patient. Take one ounce of simple cerate and mix thoroughly in it thirty drops of sulphuric acid; that is medium strength; it may be made as low as ten drops or up to sixty—not higher. One of the best of all ointments in *parasite disease* of the skin. Rub in gently, and spread on linen and apply.

Iodoform Ointment.

This ointment is made all strengths, from ten grains up to one hundred and twenty grains to the ounce, of simple cerate. Best results are obtained from thirty to sixty grains to the ounce. *Invaluable ointment where we want to promote absorption.* Rub in and spread on linen, and apply thrice daily.

Borax Ointment.

Rub up as much borax as possible in fresh lard, or simple cerate, or vaseline; not enough to destroy its cohesive property. *Excellent to heal sores, ulcers, and as a general dressing.*

Chrysophanic Acid Ointment.

Take one drachm of chrysophanic acid and one ounce of vaseline: mix. First bathe the skin well, and then rub into the affected part twice a day. *Very useful in obstinate lepra, or psoriasis.*

Thymol, or Menthol Ointment.

Take of either thymol or menthol, two drachms; chloroform, half an ounce; olive oil, one ounce; vaseline, half an ounce; mix well. Cleanse the part either by bathing or poultices, or both; dry, and then apply this ointment twice a day. Rub in well, if not tender. The chloroform carries the antiseptic thymol down to the deeper parts, and destroys all cryptogams. It is *very valuable in parasite affections of the skin.*

Chloral Hydrate and Camphor.

Take one ounce of vaseline; two drachms of camphor; and one drachm of chloral hydrate: mix. Rub into the cervical portion of the spine in cases of epilepsy; also very good in *pruritus about the anus, fundament and vulva.*

Some introduce bromide of potass into the same ointment, with the notion that the drug enters the circulation and quiets the motor and sensory nerves.

Pyrogallic Acid.

Take vaseline, one ounce; pyrogallic acid, half a teaspoonful: mix. *Very useful in tetter.* In this form it is not readily absorbed, and can do no harm, like a hair dye.

Soothing Ointment.

Take of vaseline ointment five ounces; gum benzoin, finely powdered, one ounce; liquefy the vaseline with heat, and dissolve the benzoin; and then add one ounce of the white oxide of zinc. If too thick for the use intended, bring it to the proper consistency desired by adding to it glycerine. *Excellent for the skin to render it soft and velvety. Nothing deleterious in it like bismuth.* Good for freckles, chafed, or irritated skin.

Vaseline and Eucalyptus.

Take of vaseline ointment one ounce; oil of eucalyptus one drachm; iodoform, twenty grains: mix. *Powerfully antiseptic. Excellent to apply when lupus has been removed, or warts scraped off.*

Vaseline and Iodoform.

Melt one drachm of Peruvian balsam in one ounce of vaseline ointment; then add twenty or more grains of iodoform. Made in this way all the irritating action of the iodoform is covered up. *Very useful for tender enlarged glands about neck or groin.*

Pile Ointment.

Take one ounce of simple cerate and incorporate in it one drachm of Monsul's perchloride of iron. Bathe the fundament well with cold water; dry well. Spread a small piece of this salve on a rag, and press well up against the parts. It quickly causes them to disappear. Or,

Add the oil of horse-chestnut to simple cerate, or gall ointment.

To Disperse Swellings.

Take one ounce of stramonium ointment, one of poke root ointment; muriate of ammonia, half an ounce; iodoform, one drachm: mix. Spread on linen and apply. If it reddens, remove, apply a poultice, and when the redness disappears, re-apply the ointment.

Simple Cerate.

Take lard, four ounces, free from salt, and fresh; wax, one ounce. Melt the wax and add the lard, and stir while cooling.

Vaseline.

A distillation, or gelatine or jelly, from petroleum, or coal oil, is superseding all forms of ointments. It is very valuable, but not so stable or fixed as simple cerate; that is, it evaporates very readily. It is well adapted for all antiseptic bodies; much better than any other cerate or ointment. Cosmoline, chrisma, are other names for vaseline.

Iodoform Ointment.

Dissolve as much iodoform in ether as it will take up; then add to vaseline. A good ointment in catarrh.

Magic Liniment.

Take one quart of alcohol, ninety-five per cent., and add to it the following articles: Oils of sassafras, hemlock, origanum, spirits of turpentine, chloroform, balsam of fir, oil of winter-green, and gum camphor, one ounce each. *This makes a splendid liniment for bruises, neuralgia, or any painful swelling.*

Liniment for Chilblains and Bruises.

Take two ounces of the oil of hemlock; two ounces of oil of origanum; two ounces of spirits of turpentine; two ounces of hartshorn; two ounces of chloroform, and two ounces of alcohol: mix. Shake well before using; keep well corked, and apply freely and frequently.

Spirits of Camphor.

Is made by dissolving two ounces of camphor in one pint of alcohol at ninety-five per cent. To secure the full benefit of this as a local application, it should be applied by wetting a cloth, and applying; then covering with oiled silk.

Camphorated Oil or Lard.

Is prepared by heating oil or lard in the same proportions as the above, and dissolving the camphor in it. *Valuable in inflamed breasts, or any painful part.*

Pain Killer.

Take spirits of hartshorn, one ounce; olive oil, one and a half ounces; cayenne pepper, two drachms; laudanum, two drachms; one tablespoonful of salt; and two tablespoonfuls of brandy: mix. Or,

Take two ounces of oil of spike; two ounces oil of origanum; two ounces oil of hemlock; two ounces oil of wormwood; four ounces of sweet oil; two ounces of spirits of ammonia; two ounces of gum camphor; two ounces of spirits of turpentine; add one quart ninety-five per cent. alcohol: mix well together, and keep well corked. *One of the best liniments for all pains.*

Black Salve.

Take olive oil, one pint; common resin, half an ounce; bees-wax, half an ounce; Venice turpentine, half an ounce. Melt all together, by raising the oil to the boiling point; then gradually add two or three ounces of red lead while on the fire. Keep stirring, and do not burn it; boil slowly till it becomes a dark-color; then remove from the fire; still keep stirring, and as it gradually cools, add about half an ounce of pulverized camphor to the mass. *This makes a splendid healing salve. Useful in burns, scalds, ulcers.* Spread on linen, and renew once or twice daily.

Basilicon Ointment.

Take of yellow wax, eight ounces; Burgundy pitch, three ounces; Venice turpentine, four ounces; linseed oil, ten ounces. First melt the pitch, to which add the wax and turpentine; and when they are all melted, slowly pour in the oil, stirring till it is cold. *A very valuable dressing for abscesses.*

Sulphur Ointment.

Mix together one ounce of sublimed sulphur, and two ounces of lard. *A cheap ointment for itch.*

Vegetable Ointments,

Such as cucumber, stramonium leaves, poke root, carrots, and other vegetable agents, are made by simmering the remedy in lard until its properties are extracted.

Salve for Sore Breasts, or Testicles.'

Take one pound of lobelia plant; one pound of spikenard; half a pound of comphrey; and boil them in three quarts of strong ley. Boil till they are almost dry, then squeeze out the juice, and add to it pitch and beeswax, and simmer to a moderate consistency. Spread on cloth, and apply, changing once in the twenty-four hours.

Burns.

The carbolic acid and olive oil is the best; but when that cannot be procured, do not wait, but apply one or other of the following: Ordinary white lead, painted on thick with a brush; or linseed oil, chalk, and vinegar; lime-water and olive oil; or a slippery elm poultice made with milk; flour and lard, or vinegar alone. Glycerine is good for burns with gunpowder.

Indian Turnip.

Put on a sufficient quantity of fresh lard in a saucepan, and add the Indian turnip fresh and sliced up; and when it becomes crispy, remove, and add more until a good ointment is thus formed; after which put in jars. *Very useful in scald and ring-worm.*

Lime-Water and Tincture of Iodine,

Take one pint of lime-water, and one ounce of tincture of iodine: mix. *This makes a valuable application to old sores, chancre, scald-head, erysipelas.*

For Bunions.

To take the pain out of a bunion, take half an ounce of castor oil, and the same quantity of nitrate of potass: mix thoroughly together; then spread one-eighth of an inch thick over the bunion. Relief is often instantaneous.

For Burns.

Take two pounds of common sugar: two pounds of slaked lime; beat them well together; and then add a sufficient quantity of water (keeping stirring) to reduce the mixture to a thin liquid. Then shake it well together, and let it stand forty-eight hours; filter through muslin, and then evaporate to the consistency of molasses. Then mix this thick syrup with an equal quantity of a liquid containing one part glycerine and three of olive oil. It is very valuable for burns, and contains more lime than the other mixtures.

LOTIONS, WASHES, INJECTIONS.

Soap Wash.

Shave up castile soap into a quart of boiling water. When cool, it is a useful wash or injection.

Lime-Water.

Take one-half lime-water, one-half water: mix. Apply as a lotion in *erysipelas* and *venereal sores*; as a wash or injection in *leucorrhœa*. Tincture of iodine can be added—say, a teaspoonful to a pint, for injection. Lime-water is easily prepared, by placing a lump of lime in a bucket, and filling up with boiling water; let it stand over-night, skim off the glistening surface in the morning, which throw away, and then pour off the clear water into a bottle, and save for use. This is a little stronger than what is sold in the drug stores, and better.

Borax.

For injections in the vagina in *gonorrhœa*, use from one to two tablespoonfuls of borax to each pint, or more. For lotions in *pruritus*, or itching, two tablespoonfuls to eight ounces of water, or much stronger, even sprinkling the pulverized borax over the inflamed part. It is the most useful of all lotions, washes, injections.

Iodine.

Tincture of iodine, one ounce; lime-water, half a pint: mix.
Or,

Tincture of iodine, one ounce; carbolic acid, two drachms; water, one pint: mix. *Useful washes or lotions in all parasitic skin diseases, itching, scrofulous sores, chancres, etc.*

Vinegar.

Cider vinegar, one pint; warm in a porcelain kettle, and when hot, add half a pound of saltpetre. Dissolve, saturate flannel, and apply over *inflamed joints in gout*; or over the *female breast, if desirous to arrest the secretion of milk, or soften or discuss a swelling*. Apply as hot as can be borne, and cover with oiled silk, and remove as it dries.

Sulphurous Acid.

Take of sulphurous acid, two ounces; water, six ounces: mix. Brush over the skin in ringworm, or wet linen and apply. Or,

Take one ounce of sulphurous acid; one ounce of glycerine: mix. Paint over the skin where there is *ringworm, or any vegetable disease of the skin.*

Cold and Hot Lotions.

Take a pint of water: half a pound of muriate of ammonia; half a pound of saltpetre; four ounces of common salt; one ounce of tincture of iodine: mix. Saturate a piece of flannel and apply, and cover with oil-cloth, or oil-silk, and keep wet. The first sensation for ten or fifteen minutes is extreme cold, which is followed by a most pleasurable sensation of heat, and between the two extremes of heat and cold, lymph is rapidly absorbed. *It is a most excellent application in enlarged testicle.*

Cold Lotions.

Take eight ounces of camphor-water; one ounce of liquor ammonia acetatis; and two ounces of alcohol. Or,

Take one ounce of muriate of ammonia; one ounce of alcohol; half an ounce of saltpetre; and half a pint of vinegar: mix. *Either is excellent in cases of inflammation of the brain.*

Muriate of Ammonia.

One pound of muriate of ammonia; place in a quart jar and cover with boiling water. Bottle all up, that which is undissolved with the dissolved. Handy to have in the house, as it *instantly kills the poison of bugs, wasps, bees, poisoning by ivy, sumach, mosquitoes, poisoned wounds or cuts, erysipelas, snakes, reptiles. Keep a cloth wet with it constantly applied to the bitten or wounded part.*

Chlorate, or Permanganate of Potassa.

Chlorate, or permanganate of potass, or both combined, say one grain of each to the ounce of water. *Use as an injection in gonorrhœa, or leucorrhœa; or, as a wash for poisoned wounds. Injections into the urethra should be copious, never less than an ounce; whereas, into the vagina never less than a pint.*

Sulphurous Acid Injections.

First, wash out the urethra, or vagina, well, with copious injections of soap water and borax, to cleanse; then throw up cold water, rendered sour with sulphurous acid. *Great efficacy in gonorrhœa and leucorrhœa.*

Solution of Atropia.

Take two grains of sulphate of atropia; distilled water, one ounce: mix. *Drop a few drops into the eye to dilate the pupil, twice a day, in all inflammations of the eye.*

Alum Coagulum.

Take the white of several eggs, shake them up with fragments of alum until a good coagulum is formed. *Take this coagulum and apply to or over the eyes, in inflammation, albugo and other states in which an astringent is needed.*

Iodide of Potassa Lotion.

Take four ounces of distilled water; iodide of potassa twenty to thirty grains: mix. *Useful as a lotion in intra-uterine catarrh, membranous dysmenorrhœa, chronic inflammation of the conjunctiva, and where lymph has been effused.*

Zinc Injection.

Take twenty grains of acetate of zinc; five grains of the acetate of morphia, and four ounces of rose-water: mix. Or, take oxide of zinc, thirty grains; rose-water, four ounces: mix. *Either makes an excellent eye wash.*

Elder Flower Water.

Take ten ounces of elder flower water; iodine, two drachms: mix. Wet cloths with this lotion and apply in all forms of pruritus. *It gives instant relief.*

Infusion of Lobelia.

Take a pint infusion (made by pouring boiling water on a handful of lobelia leaves and stems), and when strained, add either borax or iodine, same as the above. Good for pruritus.

Camphor Water.

Pulverize two drachms of camphor in a mortar; then add a large teaspoonful of alcohol; then rub into it half an ounce of carbonate of magnesia. Mix well and add gradually two pints of boiled water. Then filter through blotting paper.

Other Waters,

Such as fennel, bitter almond, cinnamon, peppermint, and spearmint waters, are all prepared by taking half an ounce of the oil and mixing with one drachm of carbonate of magnesia, and gradually adding two pints of distilled or boiled water.

Lime Water.

Take of lime, two ounces; boiled water, two quarts. First slack the lime with a little of the water, then pour on the balance and let it rest over night. Filter off the clear liquid, and put away in a bottle for use. Dose, from half to a teaspoonful three times a day in milk. It is an antacid, antiseptic, kills parasites and worms, frees the bowels from slimy and morbid matter. Besides, it promotes digestion and is valuable in irritable stomach, looseness of the bowels. Mixed with an infusion of Peruvian bark it is wonderfully strengthening.

Balm of Gilead Lotion.

Fill a bottle with balm of Gilead buds; then cover with whiskey. Cork up. Very useful to have in the house for cuts, bruises, wounds.

The Black and Yellow Wash.

The black wash is made as follows: Take of calomel, one drachm; lime-water, one pint: shake well. The yellow wash as follows: Corrosive sublimate one-half drachm; lime-water, one pint: mix and shake well. Both washes should be well shaken up before using. They are extensively used by the old doctors in syphilitic sores.

Tar Water.

Tar water is prepared by introducing two pints of tar into a gallon of boiled water. The mixing is effected by stirring the tar into the water by a wooden rod, and then allowing all refuse to settle to the bottom; then strain the liquid off. It should have the color of white wine. It is useful internally as well as locally; it acts as a stimulant and antiseptic. It may be drunk freely. *Useful in diabetes, bronchitis, skin and kidney diseases, and old ulcers.*

Bay Rum.

Take one ounce of the oil of bay leaves; two ounces of pulverized muriate of ammonia; one gallon of alcohol and one gallon of water. Put the ammonia in a mortar, on which pour the oil of bay; rub up well; then add about half a pint of the alcohol; rub up well, and add to the entire amount of alcohol; shake well; let it stand over night; shake again; then add the one gallon of water. If desirous of making it look like pure bay rum add a few drops of caramel to give it the requisite shade. *Excellent for bathing the sick.* Oil of eucalyptus can be added if desired.

For Freckles.

Take five grains of corrosive sublimate; two drachms of dilute muriatic acid; four ounces of water; two ounces of alcohol; two of rose-water; and one drachm of glycerine: mix. First wash the face, before going to bed, with borax soap; then apply the lotion, and wash off with soap in the morning. *Very efficacious.*

For Burns.

Take equal parts, by weight, of coarse, brown sugar and slaked lime; pound them well in a mortar; to this add a small quantity of water, from time to time, until the mixture becomes very liquid. After allowing it to stand forty-eight hours filter through a piece of linen, and then evaporate to the consistency of thin syrup. Then mix this with a liquid of equal parts of

olive oil and glycerine. This makes a good application for burns.

Ox-Gall Lotion.

Take half a pint of alcohol; add to it one ounce of camphor; let this dissolve; then add half a pint of ox-gall, and two teaspoonfuls of laudanum. Shake well and bottle for use. *It is very efficacious in fresh wounds, cuts, bruises, swellings, sore or inflamed parts.*

Benzine for Itch.

In cases of itch, rub the entire body over with benzine for half an hour. Then take a warm alkaline bath, and change all the wearing clothes as well as the bed-clothes.

Sweaty Feet, with Bad Odor.

If the borax wash does not cure, try a solution of permanganate to destroy the fetor: five grains to each ounce of water.

Lotion for Diphtheric Ophthalmia.

Dissolve six grains of quinine with a few drops of sulphuric acid, and then add to one ounce of water. To be used freely as a wash, and by keeping a compress constantly wet with it to the eye. *Excellent lotion.* Or,

Take two drachms of boracic acid; glycerine, half an ounce; water, one ounce: mix. This can be either applied to the eye or throat. It destroys the exudation.

A Jet Black Hair Dye.

Take six ounces of distilled water; one ounce of aqua ammonia; and a quarter of an ounce of nitrate of silver: mix. Before using wash the hair and scalp well; dry thoroughly, and apply by means of a tooth brush. Apply once a week. The ammonia is supposed to prevent the absorption of the nitrate of silver.

Another Hair Dye.

Take one drachm of lac sulphur; one drachm of sugar of lead, pulverized; then add them to one ounce of glycerine; one ounce of tincture of cantharides; two ounces of bay rum, and one pint of rain water: mix. Before using wash head; dry thoroughly and use as a hair dressing once a week.

MASSAGE.

This is a general term that is used for quite a variety of procedures, such as shampooing, kneading, beating, rubbing, and passive exercise of the muscles, nerves, and vessels of the entire body, or a part of it, as the extremities, trunk, back, or other parts. Massage is best performed by at first taking half an hour, morning and night, for its performance, and gradually

increasing the length of time to one and a half to two hours, and invariably to be performed by an attendant remarkable for vigor of mind and body, and not over thirty-five years of age. The entire body may be sponged off with castile soap and water, and well dried with a Turkish towel before beginning. Then the process of shampooing, or handling, is to be commenced. It is best to begin at the extremities, and follow with front and back of the body. The parts from the skin to the bone are to be well manipulated, first by friction, then by thumbing or kneading; then gentle beating, or grasping. This at once improves the cutaneous circulation, creates muscular growth, imparts vital energy, and its reflex effect on a weakened cord or bulb are beyond all possible description grand and efficacious; the muscles, vessels, and nerves are exercised, and their lost tonicity restored without the expenditure of nerve-force, but by its acquisition; it is, as it were, stamped in. To do it effectually requires an intelligent and experienced person, thoroughly drilled into it, and having some knowledge of the large muscles, at least. It is surprising in its effects; a most miraculous improvement in all cases of nerve-tire or exhaustion begins at once, which progresses on to complete recovery. The manipulation at first is trying, but in a few days the patient enjoys it; and by and by it acquires a true fascination, or charm, when pains, aches, chronic nerve-diseases of twenty or thirty years' standing yield to its potent influence. It is to be done with kindness and efficiency, and each part as manipulated carefully covered; and then another, and gone over several times until the allotted time has expired. It is usually followed by most refreshing sleep. It is troublesome, requires care, great patience, some skill, a willing effort, and affords the only means of overcoming a weakened cord and bulb, which is the predominating symptom in nerve-exhaustion of both sexes, vulgarly termed hysteria. Its very great efficacy is much enhanced by seclusion, rest, a brain diet, and electricity. *It is indicated in all chronic nervous diseases, where nerve-energy is lost or impaired; refreshes the nerves tired by worry, excitement, study, or excess. It gives renewed vigor in all forms of nervous exhaustion or debility, and is a positive cure for hysteria.*

Nervousness and Bedridden Hysteria.

The cure of nervousness, so called, which is simply anæmia of the nerve-centres, is best accomplished by restoring the healthy action of all the organs in the body, and proper diet, and exercise in the open air. Sumbul is far superior to valerian in all nervous disorders, lowness of spirits, restlessness, irritability. But it should always be borne in mind that there is no remedy equal to seclusion, rest, a brain diet, and massage

by a vital attendant; no remedy of any kind comparable to the proper and constant use of intelligently applied massage.

OZONIZED REMEDIES.

The largest number of diseases of civilized man are of his own production, and are the result of the degradation of the living matter of our own bodies into disease-germs, or micro-organisms, which contaminate the body in which they are degraded and, being so light, are diffused through the air by exhalations from breath and other excretory channels. The vitalized oxygen of the atmosphere, or ozone, destroys the larger proportion of them, but others are taken in by individuals of weak vital force, and disease spread. Ozone in nature is the great atmospheric scavenger, as well as the scourer of diseased blood. It is a parasiticide wherever found.

On August 27th, 1878, I secured Letters Patent, No. 207,496, for manufacturing Chemically Pure Ozone, which can be made artificially and introduced into a large variety of remedies, thereby changing, but always increasing their antiseptic properties, if they possess any, giving us a class of remedies of wonderful power in all diseases in which a living poison is present in the blood—giving us remedies that can annihilate cancer, tubercle, syphilis, catarrh, erysipelas, small-pox, scarlatina, diphtheria, and other germs.

All Fixed and Essential Oils,

As castor, cod liver, olive, and oils of turpentine, erigeron, rosemary, cajeput, eucalyptus, cloves, etc., as also various fluid extracts, can be very highly ozonized.

Glycerite of Ozone.

The hypophosphate of lime and soda are first added to glycerine, and then submitted to the action of chemically pure ozone for forty-eight hours, when it is ready for use. Dose, from fifteen to thirty drops three times a day, for the first few days; then from thirty to sixty drops after a week, so that the largest dose is one teaspoonful, always added to a little water. *Of wonderful efficacy in consumption, as it destroys the tubercular germ in the blood.*

It is the only remedy, so far discovered, that will positively cure consumption in its first and second and stage. Besides being curative in tuberculosis, it is a remedy of the greatest importance in all wasting diseases; it creates a general increase of nervous energy, with a feeling of ease and comfort. It also increases the appetite; digestion is improved, the bowels become regular and healthy, night-sweats and other indications of debility disappear. The blood is made pure, free from diseased germs, and its quantity and color is increased; there is more

life, vitality, as is manifest by easy breathing, cool skin, the expansion; the skin improves, the cough disappears, the face becomes natural, the lips red, and there is great vivacity; indeed, the whole body is permeated by new life. Besides its wonderful action in consumption, it can be used with great benefit in all blood diseases, in fevers and exhaustion, whenever vital force is the least impaired. Its effects are most apparent in blood and nervous diseases. In all ages and both sexes it acts equally well in giving tone and vigor to the system.

Glycerite of Kepheline Ozonized.

The ordinary glycerite of kepheline is submitted to the action of ozone gas for about a week, until it takes up about twelve atmospheres of ozone. The dose is from ten to twenty drops, added to a little water, thrice daily. This is not only a most powerful *brain food*, but also a *nutrient tonic* and *antiseptic*, and of the greatest possible value in *consumption, dyspepsia, loss of memory, nervous debility, decay of brain power, nervous prostration, neuralgia, loss of vital power, general vital deterioration, sleeplessness*. It is also of great efficacy in leucorrhœa, catarrh of the uterus, and female weakness. Besides its action as a brain or nerve food, it restores lost energy, refreshes the nerves, tired by worry, excitement, or excessive sensitiveness, strengthens, gives renewed vigor in all nervous diseases. A positive cure for seminal weakness and loss of power in the generative organs. A grand restorer of lost nerve force.

Ozone Water.

The saturation of distilled water with chemically pure ozone, gives us a remedy of rare power. Dose, from half to one teaspoonful thrice daily in water. The great efficacy of ozone water is in the destruction of micro-organisms, or disease-germs in the blood; hence, it is of inestimable value in tuberculæ, cancer, syphilis; in measles, scarlatina, and small-pox; the latter it completely annihilates; in all fevers caused by a living contagion, as typhoid, bilious, remittent, yellow fever; in erysipelas, boils; and it is so very powerful that it destroys the *sarcinæ ventriculi* in the stomach. On the nervous system it operates like a charm; it frees the brain from all induration, improves the memory, promotes sleep, arrests white softening, obviates nervous debility, puts a stop to fits, epileptic or otherwise, relieves chorea; obliterates erratic pains, or neuralgia. Ozone water has a most extensive range of action, and wide sphere of utility. It is also excellent in debility, and so vitalizes the origin of life in the user, that it causes the very hair to grow, and even the teeth in children, increases the appetite and improves digestion. In all contagious diseases and loss of vigor in the intellectual powers, its action cannot be surpassed by any drug or combina-

tion of drugs. It puts a complete stop to softening of the brain, which is so common.

Ozone et Chlorine.

This is a combination of the two gases condensed in distilled water. It is not to be used internally, but locally, for painting ulcers, sore throat, ulcers about the neck of the uterus, and other sores. It may be used as an injection with wonderful success in catarrh of nose and vagina. From two ounces to two and a half ounces are added to sixteen ounces of distilled water for a nasal douche or vaginal injection. It destroys all disease-germs with which it comes in contact. One thorough douche with it in catarrh will cure cases of twenty to thirty years' standing. It is a most wonderful remedy. When desirous of having a beautiful exhibition of the disease-germs from the nose, or vagina, or urethra, color the sixteen-ounce injection with from eight to ten grains of permanganate of potassa. After one douche, in a well-marked case of nasal catarrh, it is estimated that over thirty millions of the amœba will pass off in the discharge from the one application. It would be well never to exceed the above strength. The two gases are combined in definite proportions, and make a most reliable application. It affords us the only speedy, reliable method of getting rid of this prevalent, loathsome, and hitherto intractable disease. If ever a second treatment is necessary, it should be at least three or four weeks apart, and not so strong as the first. After one douche, in a bad case of nasal catarrh, the vertigo, the pasty or doughy appearance of the skin, the dyspepsia, languor, lassitude, debility, leave; the skin becomes natural in color, lips red, and the indescribable "tire" sensation disappears. It produces a perfect revolution in the whole body, and a speedy restoration to good health.

Chloride of Chromium, Ozonized.

First make, say, a pound, saturated solution of the chloride of chromium. Then introduce ozone gas into it for a week, until it takes up twenty atmospheres of chemically pure ozone. Then take the liquid so formed, and add to some inert powder, such as bloodroot, or licorice, or flour, so as to form a semi-liquid mass or paste. Then the cancer should be mapped out in the most correct manner; all the adjacent parts should be covered with adhesive plaster, leaving the cancer, or parts covering it, bare. Then take the plaster, half an inch or an inch thick, and apply over the cancer, covering with a little cotton. As soon as it dries, or cures, it is to be removed, another applied, and done a few times, if the cancer is deep; if small, flat, and superficial, one application will be sufficient. The object to be attained is to get the remedy to penetrate to the deepest roots. The mix-

ture will not in any way affect the sound skin or surrounding parts; but it stains, and it is well to have a clean surface. It gives no pain, nothing but a slight warmth, but seems to search and penetrate for the disease cancer-germ, with which it unites, and at once destroys. It is, so far, the only true chemical antidote yet discovered for cancer. After its application the cancer becomes hard, a dead, inert mass, which, if small, may be absorbed, but is more likely to sever its connection with the living tissue or surrounding parts, and be thrown off. If it should happen that it has not been put on frequent enough, and the roots are not all destroyed, they can be touched in the process of exfoliation. It is the best plan to effectually destroy it at first. After it has been thoroughly annihilated, which takes from a few minutes to a few hours, poultices should be steadily used until it drops out, which will be in from a few days to a week or ten days at the longest. If it drops out clean, and there is no odor of dead cancer-germs, it should be dressed with ozone ointment, and kept in apposition by strips of adhesive plaster or bandages. If, however, more germs form, it can be brushed over with the ozonized chloride of chromium, then poulticed as before, and internal treatment pushed with vigor. This is a perfectly painless and most successful treatment, and supersedes all other methods, as being painless, and not a drop of blood lost in the process.

Ozonized Clay.

Potter's clay, rubbed down to an impalpable powder in a mortar, then saturated with spring-water to the consistency of molasses, and then heavily charged with the ozone gas, bottled up, and is ready for use. To be spread between layers of fine book muslin, from a quarter to half an inch, or even more, in thickness, and bound firmly, either with adhesive strips or bandages, or both, over the affected part. If it causes no redness of the skin, it can be applied fresh daily; but if there be redness, it may be taken off and broke up, remoistened, and applied again for four, five, or six days in succession; or if it then causes redness, it can be left off entirely for a few days. In its application, never cause any irritation or redness. Ozonized clay is a remedy of intrinsic value. Useful in consolidation of the lungs from either a deposit of tubercle or effusion in inflammation; in thickening of the œsophagus, or stricture, or in the same condition in the bronchi; most efficient in fatty, starchy, or indurated liver; in yellow atrophy; decidedly efficacious in enlarged spleen. Its action is unexcelled in enlarged mesentery, or tabes mesenterica; by endosmosis it annihilates the entire mass of tubercle; in ovarian, uterine, and other internal tumors it very speedily causes their absorption and

disappearance; removes thickening of the walls of the stomach; it will even discuss bony tumors or swellings; removes by absorption the effusion in stiff or anchylosed joints; speedily reduces enlarged testicles; it will remove all tumors except the sebaceous, even the hardest fibroid, or most doughy fatty; and, above all, it is our only reliable remedy in cancer of the stomach, liver, bowels, kidneys, uterus, ovaries. Manage it judiciously, and the most astonishing results will be obtained. While using it, internal treatment must be pushed with vigor.

Compound Ozonized Extract of Saxifraga.

Formula.—Compound ozonized extract saxifraga is a combination of the active principles of saxifraga, blue flag, tag alder, bittersweet, corydalis, poke root, and aromatics. Each fluid drachm contains five grains of iodide of potassa, and five of chlorate of carbon, subjected for one week to twelve atmospheres of ozone. The dose is one teaspoonful three times a day in cancer, tuberculæ, and syphilis. The above constitutes the great national blood purifier, and is without a doubt the best alterative ever used in medicine, and is worthy of the reputation it has acquired, and can be used whenever a blood purifier is demanded.

The discovery made in recent years that the micro-organisms, or disease-germs, tuberculæ, cancer, syphilis, etc., are merely the degraded matter of our own or other's bodies, living and growing in a lower stratum or sphere of existence, imperatively calls for an alterative like this, a blood scavenger capable of annihilating those germs in the blood, and then subsequently eliminating them from the body. In addition to its action as a blood purifier, it is remarkably efficient in chronic disease, in consolidation of the lungs, thickening of the walls of the stomach, dropsy, skin, and other diseases. It is a very active, energetic, and positive combination to promote absorption, heal old ulcers, break down adhesions, promote vital power, and cleanse the blood. To enumerate the different diseases in which it is efficacious, would take up an entire volume; indeed, there are no chronic diseases that can exist long under its powerful action.

Ozone Ointment.

This can be made from lard, simple ointment, or, best of all, vaseline. Take several pounds of vaseline ointment; keep it in a liquid condition for about a week by a water bath, and keep gradually running into it a stream of ozone gas; remove from the fire and cool quickly, by packing the vessel holding it with ice and salt; keep covered.

One of the best of all ointments for dressing wounds, cuts, abrasions, cancers, ulcers of all varieties, erysipelas, boils. Its

great value consists in its antiseptic properties, destroying the bacteria and other diseased germs always found on ulcers and It should be spread on fine linen, and applied thrice daily. ores. It will heal the most obstinate ulcer.

Other Salves.

Other salves, or ointments, can be ozonized, and their therapeutic power thereby increased.

Ozonized Extract Eucalyptus.

Prepared by distillation from fresh leaves, may be termed the great prophylactic, or preventative. It is prepared exclusively for external use. It may be used as a lotion to heal ulcers or sores. The best results are to be obtained from it as an eye wash or lotion in ophthalmia, and as an injection in gonorrhœa; for the latter it is an almost instant cure. In all cases it is a preventative, if used early. Cleansing out the urethra with an injection of borax and water, and then throwing up one of the ozonized eucalyptus, at once destroys every gonorrhœa-germ with which it comes in contact. Its action is definite. It operates the same in the vagina, but it is somewhat expensive for large injections.

Kurchicine, or Hindoo Bitters.

This active principle is obtained by distillation from the bark of holarrhena, antidysenterica, and then subjecting the extract to the action of ozone.

It is a pure bitter tonic, with great range of action, very nearly equal to cinchona. It is an antidote to the whiskey habit. Dose, from one teaspoonful to a large tablespoonful every three hours, or more frequent. It promotes the appetite and aids digestion; it stimulates the liver and thus regulates the bowels; it washes out the kidneys; has a beneficial action on the skin. It is especially useful in all diseases, or inertia of the liver. As a general tonic it braces up the vital powers, and gives more stamina and power of endurance to the body. It will readily break up chills and fever, but has no influence on either the pulse or heat of the body. It can be used with great success in all cases of debility.

Spermatorrhœa Pills.

These pills are made up expressly for repressing and cutting off for the time being sexual desire, and stopping leakages, losses of semen, whether it be in the form of daily or nightly emissions, which are visible, or those unseen, into the urine and bladder; leaving the sexual feeling strong and vigorous afterwards. For this purpose we have prepared the following invaluable prescription, an active principle from the green root of gelsemium, the active principle of the coca erythroxylon,

jerubabel. Highly ozonized. Made into three grain pills, one to be taken at 3 P. M., and two or three before retiring to bed. There should also be used the cold water hip-bath, and the rectum should be washed out with a half a pint or more of cold water before going to bed, and the right side reserved for sleep. They are most effectual in checking all leakages, and when discontinued after three or four weeks' use, the organs are more vigorous than before.

Sexual Invigorator.

Remedies that increase sexual power, or sexual stimulants. They are numerous, but mostly worthless, simply exciting the imagination. We have prepared the following, thoroughly ozonizing it:

Formula.—The active principles of the true damiana erythroxyton coca, cantharides, nux vomica. Dose, fifteen to thirty drops in a little water; begin at three, six, and nine P. M. The small dose is generally sufficient. Its action may be said to be instantaneous and very salutary. It gives a man, either prematurely old, or really old, all the vigor and ardor of youth. In order to maintain its very beneficial action in impotency, the glycerite of kephaline should be used in connection with it. It leaves no injurious results.

Compound Betin Pill, Ozonized.

Prepared from the active principles of the red beet, ozonized. Each pill contains two grains of betin, half a grain of caulophyllin, half a grain of the solid extract of hyoseyamus and mandrake, hardened with powdered myrrh. Dose, from one to two three times a day, for three or four days before the menstrual period. These pills have a most benign action on the uterus and ovaries; keeps the uterine system healthy, active, and vigorous, so much so, that if used by ladies, they will maintain menstrual activity till well advanced in years, thus preventing this premature old age that is so common among ladies; and also that shrinkage, withering, wrinkling. In other words, they maintain one of the most important of the vital functions of the female economy in activity, and with it the elasticity of youth; the mental vivacity and force; the smooth, dimpled skin, and other evidences of youth, in mature development. Married ladies, during the child-bearing period of life, should not use them.

Cascara Sagrado.

The powdered cascara, subjected to the influence of ozone, loses all its unpleasant taste, and becomes one of the most pleasant and reliable remedies for constipation, and where an efficient but gentle action of the bowels is desired. An inval-

uable remedy for ladies, children, or the aged. It can be administered in tea or coffee, without the knowledge of the user. It is put up in tablets, one square being designed for an adult, half of one for a child. It entirely supersedes the use of castor oil, rhubarb, senna, and other nauseous drugs.

Valdivine.

A remedy for tape-worm, prepared or isolated from the kameela, made from koussou, pomegranate root bark, pumpkin seed, etc., and ozonized, we had presented some years ago, and now introduce it to the people at large as the only certain remedy for tape-worm, and the most reliable for their expulsion. No preparation is needed for its use; it can be given at any time. To enable parties to obtain it fresh, and obtain the desired effect, we will mail it either to patients, physicians, or druggists.

Santonine Lozenges.

Take five ounces of pulverized white sugar; one-quarter of an ounce of fine starch; ten grains of finely-powdered tragacanth: mix the whole well. Then beat up to a dense froth the white of five eggs; then add the above to them, and place in a porcelain vessel over a water bath, and stir constantly till the temperature reaches 100° F., until the mixture will no longer run from the spoon. Have ready a mixture of one hundred grains of fine pulverized sugar, and fifty grains of pure white santonine, pulverized, and incorporate this very thoroughly with the mass, and pour out the entire quantity, and divide into one hundred lozenges or squares, each containing half a grain of santonine. They, each one, must be covered carefully over to protect them from the light.

Other Ozonized Remedies.

Liquid ozone, a powerful remedy for destroying disease-germs. Ozonized extract of sumbul, very efficacious in chorea and epilepsy. Ozonized extract of fucus vesiculosus, as an anti-fat remedy. Ozonized turpentine, an invaluable preparation locally in peritonitis, its application seldom failing in aiding a renewal of life and a rapid cure.

Ozonized Syrup of Phytolacca Compound.

Formula.—Take equal parts of the active principle of poke root, stillingia, yellow dock, helonias, menispermum, sassafras. Make a syrup, and add five grains of the iodide of potassa, and five of the chlorate of carbon to each drachm: mix, and submit the entire quantity to a pressure of twelve atmospheres of ozone gas for one week. Dose is one teaspoonful thrice daily.

It is precisely the same in its action as the saxifraga extract. It forms simply a change. The saxifraga being the most active

of the two. *Invaluable as an alterative and blood purifier in cancer, syphilis, tuberculae*, chronic disease generally, and wherever an alterative is demanded.

PARAFFINE DRESSING, OR SPLINTS.

Paraffine has a guaranteed melting point of 130° F. It is found in the shops in odorless, whitish, or semi-transparent solid blocks, or bars; and to facilitate its melting, should be shaved down, and the shavings put into a tin vessel, and this vessel placed in another containing boiling water; liquefaction will soon take place. It is not advisable to place the paraffine on the fire, because if it gets into the fire it burns like grease, although a lighted match thrown into it would not make it either explode or burn, and there is little likelihood of any atmospheric temperature affecting it in the least possible degree. Paraffine dressing, or splints, do not shrink or contract in the least appreciable degree. This may seem strange, as all bodies contract in cooling, and paraffine forms no exception to the general rule. But this apparent contradiction may be explained by bearing in mind that the first part to cool is the external layer, the internal being kept warm, both by its own heat and the heat of the body, so that the cooling will take place from without inwards, and the contraction will take place toward the outer layer. As a consequence of this, it can be applied with a degree of firmness which it is necessary to maintain. When about to make a splint of paraffine, it is necessary to select some substance which will hold it, and which can be readily adapted to the limb, back, or other part of the body to which it is desirable that it be applied. The material which answers this purpose best is cotton-wool. Any kind will do, but the cotton wadding which is made up in sheets for quilts is the best. When about to make a splint, cut a piece of this sheet cotton wadding the necessary size. It may be either a single layer, or two or more, according to the object in view—just enough to cover or envelop the limb, or make a jacket. Then cut it neatly with scissors, do not tear it, and roll it up, and immerse it in the melted paraffine; let it lay a few minutes in the liquid paraffine all submerged. After it is thoroughly saturated, have a tray or piece of oil-cloth ready, well oiled, so as to prevent anything adhering to it, into which the saturated cotton is to be turned and unrolled. After it has cooled to such an extent as to be borne by the back of the hand, it is ready to be applied to the part. The cooling does not take many minutes; it will depend a little on the thickness of the layer. It is best to apply the paraffine right to the skin, without any intervening body. When the sheet of cotton-wool saturated with the paraffine is applied to the part, a bandage of gauze, or book muslin, should

be applied, so as to press the cotton firmly. This pressure causes a cohesion in the splint, and presses out any superabundant paraffine. Then apply ice-water, which will cause the paraffine to harden at once. This substance can be manipulated to make almost any kind of splint or mechanical support—permanent splints, partial, any size, any form, with openings to dress wounds, or otherwise. If it is the desire to delay consolidation of the splint, retard cooling, apply no ice-water; then it will take about ten minutes to cool.

The hands of the operator get smeared with the paraffine; but this can easily be removed by hot water, or by rubbing glycerine over the hands.

When the splint has served its purpose, the paraffine can easily be taken out of it by immersing in boiling water, and at the same time cleansed of all foreign bodies, and be again ready for use, because all extraneous matter settles to the bottom, and the paraffine cakes on the top in cooling; and if it is supposed that it is not cleansed enough by one application, it may be washed again.

Paraffine, as a material for splints and mechanical support, possesses many advantages, as it is always handy, and can be got ready for use in a few minutes. It keeps well, and never undergoes any change, unless it is exposed to heat over 130° F. Water, moisture, or any discharge has no effect on it. It is most agreeable to the skin, and the quickness of consolidation is in the hands of the person applying it. It can be cut with a sharp knife into any shape. It is very light and pleasant to wear. It entirely supersedes the irritating, uncomfortable, weighty plaster of Paris, and is as cheap. *It can be used in many fractures and deformities; in synovitis, spinal curvature, club-foot, etc.*

PESSARIES, OR PASTILES.

Pessaries, or pastiles are made of cocoa-nut butter, in moulds, sometimes quite small, in other cases moderately large, and of various shapes. Although this butter readily dissolves at the temperature of the human body, it is best for the easy introduction of them that they be made of an oval form, instead of the shape of an ordinary pessary. They are designed specially for diseases of the vagina, uterus, and its neck. In all cases, before they are introduced by the lady, the vagina should be thoroughly washed out with at least a quart injection of soap and water, or borax and water, or the permanganate potassa injection. The pastile introduced, patient in the recumbent position, with head low, and a pillow below the buttocks, which posture should be maintained for at least three or four hours, until the action of the medicine has been utilized on the parts. The best time for their introduction is after the patient has

retired for the night, so that the parts receive the full benefit of the drug.

For Falling of the Womb.

Hazeline, perchloride of iron, sulphate or acetate of alumina, of each five to ten grains to each pastile, and from thirty to sixty grains of the cocoa butter, *acts like a charm upon the parts*. A few weeks give a radical cure.

Pruritus of Vulva.

It is rare for the itching to extend up any great length; still, the action of borax, and other remedies in a pastile, is often of great utility.

Catarrh and Ulceration of the Neck and Os Uteri

Can be readily cured by cocoa-nut butter pessaries, and some of the following agents in the annexed proportions to each pessary of sixty grains of the butter:

Iodide of potass, ten grains to each. Acid nitrite of mercury, one to two drops. Boracic acid, five to ten grains. Sulphuric acid, one to three drops. Acetate of zinc, three to five grains. Sulphate of hydrastin, five grains. Acetate of alumina, five to ten grains; and so with other agents.

The blowing of triturations of bichloride of mercury on the neck is attended with danger, and never should be countenanced,

Rigidity of the Os and Neck.

In induration, thickening, and other forms of mechanical dysmenorrhœa, one-quarter of a grain of solid extract of belladonna to sixty grains of the butter answers well, as it effectually paralyzes sphincter fibres, and thus relaxes.

Thickening of Neck of Uterus.

Take of iodide of potass—say, sixty grains; cocoa-nut butter, one ounce: mix, and make into eight pastiles. One at bed-time.

Intra-Uterine Catarrh.

A catarrh of the internal lining membrane of the uterus. Is best treated with iodide of potass and iodide of lime internally, and once a month injecting the uterus with four ounces of distilled water, with twenty grains of iodide potass, and carefully withdrawing every drop of the injection before removing the syringe. American ladies do not bear injecting the uterus well; the law of reflex impressibility is too strong. There is danger from that, and from the fluid penetrating the uterine sinuses and causing death. It is now very highly recommended by European authorities to insert the cocoa-nut butter with iodide potass into the cavity of the uterus, made into the shape of a catheter, and permitting it to remain. For the reason above assigned it is not to be recommended. Such a practice may be

very serviceable in the male urethra in gonorrhœa, but risky in the extreme in the cavity of the uterus.

Ulceration of Neck.

Take the solid extract of bayberry, sulphate of hydrastin, and sulphate of quinine, one drachm of each to two ounces of cocoa-nut butter; make into sixteen pastiles. *Unexcelled* in ulceration. Or,

Take borax, golden seal, bayberry, one drachm of each, and incorporate in two ounces of cocoa-nut butter, and make into sixteen pastiles. The articles are reduced to an impalpable powder, and act to some extent mechanically.

To Relieve the Pain of Cancer.

If the cancerous mass has not protruded from the os, pessaries can be used. Take thirty grains of pulverized opium; one drachm of the solid extract of conium; and twenty grains of the solid extract of hyoscyamus; and two ounces of cocoa-nut butter. Make sixteen pessaries. Cleanse away discharge with permanganate injection, and introduce one frequently.

Neuralgia of Uterus.

Belladonna and quinine internally often fail to afford amelioration. The belladonna plaster over the loins, and rectal suppositories of the same, even, fail, when the prompt use of the following will give instant relief: Take five grains of the extract of belladonna; twenty of pulverized opium; and two drachms of bromide of potass; cocoa-nut butter sufficient to make sixteen pastiles. Insert one every four hours.

Uterine Tumors.

Take ergotine, iodide of potass, of each one drachm; cocoa-nut butter, two ounces, or less: mix. Make ten pessaries; introduce at bed-time. *Valuable in the absorption of uterine growths.* Or,

Take perchloride of iron, one drachm; opium pulverized, thirty grains; cocoa-nut butter, two ounces: mix, and run into the moulds; use at bed-time. *Valuable to cause spongy growths or polypi to disappear.*

Uterine Catarrh.

Take of butter of cocoa a sufficient quantity to fill the tube of a No. 12 catheter (male), whose point has been filed off; add to it five grains of iodoform, and have a tube made to go inside the catheter capable of pressing it out. Then introduce it so charged into the cavity of the uterus; let it remain a few minutes until the butter begins to melt in the catheter. Then introduce the tube into the catheter, and push the iodoform butter into the cavity of the uterus, and withdraw the empty catheter. Keep patient on her back. It is very effectual.

PLASTERS AND LOCAL STIMULANTS.

Local stimulants, or sedatives, are useful, not only in stimulating the skin, but are of great service where we desire to aid a renewal of life in any deep-seated part, or where we are desirous of promoting an absorption, or breaking down, or soothing.

Croton Oil Liniment.

Take a drachm of croton oil; half an ounce of olive oil, and mix together. *Valuable to produce a deep stimulating effect, as the relief of internal organs.*

Aconite, Belladonna, and Chloroform.

Take two ounces of the tinctures of aconite; two of belladonna, and two of chloroform: mix. Either rub on the painful part, or saturate a cloth, and then apply. Cover with oiled silk. *Extremely valuable in neuralgia, the chloroform being very penetrating carries the aconite and belladonna down to affected nerve.*

Oils of Hemlock, Cajeput, Sassafras.

Take equal parts of the oils of hemlock, cajeput, sassafras, turpentine, and make a liniment, and apply. Useful in rheumatic inflammation of joints.

Capsicum Liniment.

Take olive oil, four ounces; aqua ammonia, two ounces; oil of capsicum, thirty drops: mix. Rub over affected part.

Stimulating Liniment.

Soap liniment; liniment of opium; camphora liniment, of each, two ounces; chloroform, an ounce: mix, and apply over the painful part.

Caoutchouc Solution.

Take a small piece of india rubber or gutta-percha, and dissolve them in chloroform. A good protective solution. *To be painted over parts that need protection.*

Collodion Paints.

Take one ounce of collodion; twenty drops of palm oil; carmine to color: mix. This makes an artificial skin that will not crack. So also does a few drops of glycerine added to collodion. Used as a varnish in cutaneous affections, superficial burns.

Liniment of Lime Water

Consists of equal parts of olive oil and lime-water. *This is a good remedy for burns.*

Starch of Glycerine.

Starch and glycerine are an excellent preparation for chapped hands.

Carbolic Acid.

Take either six, eight, or ten ounces of olive oil, according to age of patient, and add one ounce of carbolic acid. *Our best remedy in burns.*

Irritating Plaster, or Tar Plaster.

Take of refined tar twenty-four ounces; Burgundy pitch, twelve ounces; white pine turpentine, eight ounces; mandrake, root, blood root, poke root, and Indian turnip, of each one ounce, in very fine powder; capsicum, same quantity. Melt the Burgundy pitch in a vessel in boiling water, same as a glue pot, with the white pine turpentine, and when melted add the tar. After that is thoroughly mixed then add the powders, and remove from the fire. Spread on leather the desired size, or put up in cans. The very best of all stimulating plasters. Very useful whenever we need a local stimulant to break down and absorb lymph. *Invaluable in chronic pneumonia, pleurisy, phthisis, spinal irritation, hip disease.*

It may also be made in a hasty manner for instant use by simply adding pulverized mandrake, bloodroot, Indian turnip, and capsicum to refined tar sufficient to make a thick mass. But it is not so elegant, does not adhere well, is apt to move about and soil the linen. Being specially useful for chronic affections, the former is by far the best. If a hasty or immediate action is desired, over where it is designed to apply the plaster either a blister for six hours, or croton oil, or some other stimulant should be first applied.

Warm Plaster.

Take one part of cantharides plaster, Burgundy pitch, fourteen parts; pulverized cayenne pepper, two tablespoonfuls. *Excellent in the chest in colds, or where there are pleuritic or rheumatic pains about plura or heart.*

Corn Plaster.

Soak the foot with the corn in warm soda-water, and pare as close as possible; then apply the following plaster: Take of aqua ammonia, two ounces; yellow wax, two ounces; and acetate of copper, one ounce. Melt the ammonia and wax together, and after removing them from the fire, add the copper just before they grow cold. Spread this on a piece of soft leather and apply. Remove in two weeks; corn usually drops out, or can be removed.

Styptic Colloid.

Take one hundred parts collodion; ten parts of carbolic acid; five parts of tannin; five parts of benzoic acid from the gum: mix in the above order, and a perfect solution is effected. Paint over the part, and somewhat around the sound part. This

makes an excellent covering for sores, cuts, under which the wound rapidly heals. It is also excellent in burns, erysipelas, bunions, and wherever a good, strong covering is desired.

Liquid Solvent for Corns.

Put some pearlash in a wide-mouthed bottle; place in a damp place till it forms an oil-like fluid. Then cork, and paint the corn with it as often as convenient until it is clean dissolved.

Warts and Corns.

Take half a pound of common potash; eight ounces of water; half an ounce of the extract of belladonna; half an ounce of gum arabic, and enough of flour to form a paste. Keep well corked. Bathe the feet or hands, dry well, apply a piece of this to either the wart or corn, and let it remain five minutes. Then loosen the corn with a sharp knife, and it will drop out. Subsequently, keep wet with vinegar.

Strengthening Plaster.

Take three parts of hemlock gum; one part white pine gum; melt and strain. As it is cooling, a few drops of oil of capsicum can be added. Spread on leather and apply.

Strengthening Plaster.

Take litharge twenty-four parts; white rosin, six parts; yellow wax and olive oil, three parts; red oxide of iron, eight parts. Let the iron be rubbed with the oil, and the other ingredients added. Melt and mix the whole well together. Spread on leather the required size. *Excellent for weakness and relaxation of parts.*

To Cure a Felon.

A felon is simply an inflammation of the bones of the fingers, and can be arrested like all other forms of inflammation if seen early, by local stimulants, by some of the following plans: The immersing of the affected finger in strong lye as hot as can be borne, at frequent intervals; or the oil of lobelia; or the application of a blister over the part for six hours; or the application of Venice turpentine; or the ordinary spirits of turpentine. The object in view being to stimulate a renewal of life in the part.

POULTICES.

Poultices have various properties, act as local stimulants, and aid a renewal of life over the part to which they are applied. They are soft, emollient, and hold heat and moisture well, and are usually made of ingredients to meet some peculiar indication.

Bran Poultice.

Make a linen or cotton bag of the size requisite to cover the

affected part, and fill it loosely with bran. Then either dip it into a pot of boiling water, or pour boiling water over it, till it is thoroughly moistened. Then place in a coarse towel, and wring it so that the water will not drop out of it. Then apply as hot as can be born. When nearly cold, remoisten and again apply.

Bread and Milk Poultice.

The bread and milk poultice is usually made by taking bread crumbs and covering with milk, and then boiling, keeping constantly stirring until it is reduced to a fine, soft mass, when it is to be removed and spread about half an inch thick on a piece of clean old linen, and applied: changed as soon as cold. It is of great utility in foul ulcers, or sores, in which diseased germs are abundant. Some grate mutton suit very fine, and introduce it into the same poultice, cooking all together.

Linseed Meal Poultice.

The best authority on this poultice lays down the following as the best method of making it: Scald the basin or bowl by pouring a little hot water into it, which throw out, and then add a small quantity of finely-ground linseed meal into the warm bowl; pour a little boiling water on it, and stir it round briskly till they are well incorporated; add a little more meal and a little more boiling water, and stir again, and so on. Let no lumps form, but stir actively until it is well worked, so that it adheres well together. Then spread it on a piece of soft linen, about a quarter of an inch thick, and so large that it may cover the affected part, and a little beyond.

Slippery Elm Poultice

Is made by boiling powdered slippery elm in water till it is of the required consistency to hold heat and moisture, and in sufficient quantity. The linseed and slippery elm poultices are those in general use, and are of the greatest utility for holding heat, moisture, and being bland and healing.

Onion Poultice.

Onion poultice should be made of either garlic or the red onion roasted, then skinned and crushed, and applied hot. Some add mutton suet, as a layer, in shreds, to hold the mass together. Very useful in the catarrhal affections of children. Changed twice or thrice daily.

The Alkaline Poultice

Is made by adding bicarbonate of soda or potassa to the ordinary slippery elm poultice. Its great efficacy consists in the tendency of the alkali to discuss or hasten the breaking-down of lymph. Hence it is valuable in all swellings, thickenings,

indurations, inflammations, but usually very painful; that, of course, depends greatly on the amount of alkali added. As a rule, if applied, let it be during the day, and some soothing anodyne poultice at night. The quantity of the alkali added to each poultice will depend on its size and the object to be attained—speedy or slow. It is usually very active in promptly bringing about suppuration, or in getting rid of the lymph. It should be discontinued the moment the object is attained.

The Antiseptic, or Yeast Poultice.

The antiseptic, or yeast poultice, may be made of brewers' yeast and Indian meal, but it is better to make it of all, or some of the following ingredients: Pulverized charcoal, wild indigo, slippery elm, linseed meal, brewers' yeast, carbolic acid and cayenne pepper. Make a mass by, say, one tablespoonful of charcoal, one of wild indigo, two of linseed meal, half a teaspoonful of cayenne pepper, and five or ten grains of carbolic acid: mix with brewers' yeast; increase quantity with size of poultice. It should be at least an inch thick. It is of great efficacy in threatened gangrene, or where we are desirous of establishing a line of demarcation in certain states; if for the latter, increase the quantity of the capsicum, same as the charcoal. It should, like all other poultices, be a soft pultaceous mass, and be changed twice or thrice daily.

Mustard Poultice.

This is mixing pulverized mustard with hot water and applying.

Medicated Poultices.

Pulverized opium, or tincture opium, or fluid extract of conium, or other anodynes can be added to the ordinary slippery elm or linseed poultice.

Lobelia Poultice.

Made by stewing the plant or powder, adding in either elm or linseed meal.

Carrot Poutice.

Boil the red carrots till they are quite soft, then mash them into a pulp.

Cranberry Poultice.

Cranberry poultice in same manner. Both very useful in foul, bad smelling sores, cancers, and the like.

Charcoal Poultice.

Take linseed meal, one-half pound; pulverized charcoal, two ounces; boiling water to make it of sufficient consistency. When cool enough, apply. Change often. It corrects and prevents the tendency to mortification.

Indian Turnip Poultice.

Take the pulverized root, and add in quantity desired, to slippery elm. *Valuable poultice for joints and swellings.*

Vinegar Poultice.

Soak bread in vinegar and apply cold. For bruises, extravasations, black eyes.

Alum Poultice.

Alum poultice is made by beating pulverized alum in white of raw egg, until they coagulate. Good for chilblains and for stimulating absorption about the eyes. Apply on linen and cover with a piece of fine muslin.

PRESERVATION OF THE TEETH.

The premature decay of the teeth in our country is proverbial, and its causes are diversified and widespread, and embrace some of the following: such as a genuine deficiency of bone elements in the blood, owing to their absence in the food; the use of mercury in medical practice; the use of sweets, in which glucose enters so largely; ices, hot and cold drinks, which crack the enamel of the teeth; the very general inattention to the proper care of the teeth, in not cleansing them properly after meals; the use of deleterious tooth powders, which are chiefly composed of pulverized pumice-stone and orris-root, which grind off the enamel; disease-germs in the mouth and their micrococci are destructive to the dentine; the filling of cavities in decayed teeth with amalgams which are all loaded with mercury. Some think that the great increase of degeneration is due to early precocity; the increase of nervous disease, which corresponds to the deterioration of the teeth, influencing, and in a measure causing the other; but perhaps the greatest of all causes is the overstimulating the nerve power by a too early and onerous education, causing a heavy drain upon the phosphatic elements, and a defect in the assimilation of bony matter of the teeth.

Nearly all the above causes admit of removal; the use of tooth powders and amalgams for filling should be positively avoided, and a natural method of preservation resorted to.

The Gem of Tooth Washes and Preservers.

The bark of the quillaya, a tree that grows abundantly in Chili, contains a saponaceous principle which is extensively used in the arts for its powerful cleansing properties. A decoction made by placing a small piece of the bark in water and soaking over night will, if applied to grease spots and stains at once remove them, leaving the cloth as if it were new; applied to the hair and scalp it promptly removes dandruff and other affections of the hair, and when applied to the teeth, not only

cleanses, but imparts to them the whiteness of the finest ivory. The preparation that we recommend for use in every family and by every individual, young and old, is the fluid extract, a small quantity added to water and used, will preserve the teeth like a row of pearls till a good old age. It should supersede all washes, powders, and other deleterious nostrums.

Toothache.

Nitrite of amyl, or a one per cent. solution of nitroglycerine, is most effectual in toothache. Simply steep a piece of cotton-wool with either, and introduce it into the painful cavity; or fill the cavity with a few pieces of chloral hydrate, and allow it to dissolve; a lotion of aconite, belladonna, and chloroform is also excellent; also, oil of cloves and chloroform.

White Teeth.

Take either chalk, or pumice stone, pulverized, two ounces; orris root, pulverized, one ounce; gum myrrh, a quarter of an ounce; pulverized sugar, one ounce; pulverized Peruvian bark, half an ounce; rose pink, enough to color. Use with tooth brush. *It whitens the teeth, hardens the gums, imparts a sweet odor to the breath.*

Oralina.

This is an agreeable preparation as a toilet article for cleansing the mouth and teeth, and imparting a pleasant fragrance to the breath. It is stimulant, astringent, and antacid. It is thus prepared: Take of either pulverized pumice stone, or precipitated chalk, four ounces; one ounce pulverized cuttle-fish bone; half an ounce of pulverized boracic acid; orris root, one ounce; a few drops of otto of roses: mix, and apply with a brush; or diluted with water, as a mouth wash. It is a wholesome detergent for general use, and contains nothing injurious to the teeth.

White Filling for Teeth.

In order to aid in discarding the very reprehensible practice of filling the cavities of decayed teeth with amalgam, which contains mercury, we give the following, which is excellent:

First clean out the cavity, dry it well, then drop in a drop of a solution of gutta-percha in chloroform. Then place on a piece of glass a small piece of fused chloride of zinc; allow it to deliquesce; then add glass reduced to an impalpable powder, enough to make a thick paste: mix rapidly, as it sets quickly, and fill neatly into the cavity. Or a more permanent white stopping can be made by mixing the glass with the oxide of zinc and pyrophosphoric acid. In the above method the nerve of the tooth need not be destroyed.

PURGATIVES, OR CATHARTICS.

Purgatives, or cathartics, are a class of remedies that produce repeated evacuations from the bowels. They operate in a variety of ways. Some by irritating the mucous coat of the bowels, thus causing increased action of the exhalent, or mucous follicles; others by acting upon the serous coat; while another, and the best class, promote a free flow of bile from the liver. The last are least depleting.

Salines.

Take two quarts of water just off the boil; eight ounces of Epsom salts; four ounces of Glauber salts; two ounces of Rochelle salts; one drachm of saltpetre; and one drachm of sulphuric acid: mix. One, or more, tablespoonfuls in half a teacupful of water, either before retiring, or else very early in the morning. Every family should keep the mixture. *It is the best of all saline cathartics.*

White Liquid Physic.

Take a pint and a half of water; sulphate of soda, half a pound; nitromuriatic acid, two ounces; and powdered alum, one drachm: mix. Dose, six drops in a wineglassful of water one, two, or three times a day, as indicated. *It acts as a cooling purgative, allays nausea, vomiting; very valuable in liver disease, dysentery, jaundice, malarial fevers; also acts well on the blood.*

Epsom, Glauber, Rochelle Salts.

A teaspoonful of either, added to enough water to dissolve, and taken as indicated; or they can be combined. A mild cathartic.

Epsom Salts and Sulphuric Acid.

A teaspoonful of Epsom salts to half a tumbler of water; then add fifteen drops of aromatic sulphuric acid for a dose.

Phosphate of Soda.

One teaspoonful of phosphate of soda to half a teacupful of sassafras tea, and repeat; is an excellent purgative, by causing a free flow of bile.

Senna and Prunes.

Make an infusion over-night, by pouring a pint of boiling water upon two ounces of senna leaves. By the morning it will have evaporated down to a half-pint; if not, boil down to that quantity; then strain very carefully. Take this half-pint infusion, and add to one pound of Turkey prunes, boil or simmer in a close vessel down to a pulp, then add sugar enough to make a jam or jelly to preserve; flavor with oil of lemon; put away as a preserve. One tablespoonful, more or less, will act

as a gentle laxative. The taste of the senna is entirely disguised, so the patient need not know that it is intended as a cathartic. Best taken at night. *Useful for habitual constipation.*

Sulphur and Magnesia.

Take carbonate of magnesia, twenty grains; bicarbonate of potassa, ten grains; sulphur, twenty-five grains; pulverized ginger, five grains: mix in a tumblerful of milk, and take very early in the morning.

Compound Powder of Jalap.

Take compound powder of jalap and senna, twenty grains; croton oil, one drop: mix, and rub up well, and give frequently till the bowels open freely, in inflammation of the brain.

Elaterin.

Take of the liquor ammonia acetatis, one ounce; sweet spirits of nitre, half an ounce; syrup of ginger, half an ounce; elaterin, one grain: mix. Dose, one teaspoonful every two hours until the bowels are freely moved, in dropsy, and afterwards once or twice a day. The pill elaterin contains one-twelfth of a grain, and is also a very active purgative in dropsical effusions.

Mandrake.

Take of pulverized crude mandrake, thirty grains; cream of tartar, half an ounce; nitrate of potassa, one drachm: mix. Make ten powders; take one night and morning. Mandrake excites an acrid secretion from the liver, and never should be given alone, as it is highly dangerous. The compound vegetable antibilious pill is also a good form; a good cathartic when the liver is torpid.

Castor Oil.

The taste of castor oil may be destroyed by mixing it with a teacupful of well-salted and peppered beef tea; or by mixing it with glycerine, and flavoring it with cinnamon-water.

Sulphur.

Take one ounce of the sulphate of magnesia; one drachm of the sulphate of iron; two drachms of aromatic sulphuric acid; compound tincture of gentian, one ounce; water, three ounces: mix. Dose, two tablespoonfuls once or twice daily in water. *Excellent in skin diseases, or in piles with very torpid liver.*

REFLEX SEDATIVES.

The fact being established that the medulla oblongata, spinal cord, and the co-ordinating chemical centre at the base of the brain are true reflex centres, a classification or enumeration of a special class of drugs under this head is imperative.

Sumbul and Bromide of Potass.

Take four ounces of the fluid extract of musk root; one ounce of bromide of potassa; three drachms of bicarbonate of potassa: mix. As soon as the patient can swallow in lock-jaw, one teaspoonful every two hours. *Useful in all reflex states similar to lock-jaw.*

Calabar Bean.

The tincture of calabar bean is best given alone, in from half to whole teaspoonful doses every two hours, with the above. *Spasm, lock-jaw.*

Bromide of Potass.

Take six ounces either of cinnamon or camphor-water; two ounces of bromide of potassa; four drachms of bromide of ammonia; half an ounce of bicarbonate potassa; one ounce of the tincture of calabar bean; and thirty drops of tincture of black-snake root, aconite, belladonna: mix. One teaspoon at least every three hours, or more frequent. *Of decided efficacy in asthma, angina pectoris, whooping-cough, convulsion, epilepsy, hysteria.*

Bromide of Ammonia.

Take four ounces of cinnamon-water, to which add half an ounce of bromide of ammonium, and two drachms of the chlorate of potass: mix. Dose, a teaspoonful every three hours. *Valuable for infants in cases of spasm.*

Lobelia.

Take thirty grains of pulverized lobelia leaves fresh; the same quantity of the solid extract of hyoscyamus pulverized; the same of capsicum: mix. Make into thirty pills. Dose, one or two every three hours. *They are of remarkable utility in all forms of nervous irritability or twitchings.*

Scullcap.

Take equal parts of the fluid extract of scullcap, American valerian (ladies' slipper), and catnip: mix all. Dose, from fifteen to thirty drops every two hours. *Is valuable for nervous irritability, headache, neuralgia, nervousness.*

SUPPOSITORIES.

Suppositories are a class of medicinal compounds in which remedies are introduced, mixed, incorporated, or dissolved in cocoa-nut butter and run into pear-shaped moulds usually containing either thirty or sixty grains in all, and introduced into the rectum at stated intervals for special maladies. This butter melts at the ordinary temperature of the body, and they should not be made large, as it is the object that they be retained some time.

Opium and Tannin.

Take of cocoanut butter thirty or sixty grains; opium pulverized, one grain; tannin, five grains: mix, and run in mould. *Valuable in diarrhœa and dysentery.*

Belladonna and Opium.

Take four grains of the extract of belladonna; eight of pulverized opium, and a sufficient quantity of the cocoa-nut butter to make eight suppositories: mix, run into moulds. One at bed-time, or more frequent in *neuralgia of the uterus, painful menstruation.*

Lobelia.

Take twenty drops of the oil of lobelia; thirty of the oil of capsicum; a sufficient quantity of cocoa-nut butter to make eight suppositories of proper size: mix. *Use in epileptic fits, convulsions, tetanus.*

Perchloride of Iron.

Incorporate two drachms of Monsul's salt perchloride of iron in a sufficient quantity of cocoa-nut butter to make six suppositories. Opium can be added if desired. *Extremely valuable in bleeding piles.* One introduced every night at bed-time, rapidly, shrivels them up and they disappear.

Iodide of Potass.

Take two drachms of iodide of potass, four grains of extract of belladonna, and eight of opium. Mix in a sufficient quantity of cocoanut butter and make eight suppositories. Empty the rectum first with a teacupful of cold water thrown up, and as soon as evacuated insert suppository; best to be done before retiring. *Exceedingly valuable in enlarged prostate.*

To substitute bromide of potassa instead of the iodide would render it useful in nocturnal emissions.

Lobelia, Capsicum, Valerian.

Take of the resenoids of lobelia, capsicum, and valerian, say, two drachms of each, add sufficient quantity of cocoanut butter to make eight thirty-grain suppositories. *Insert one every half hour in lock-jaw till the mouth opens freely.*

Opium and Hyoscyamus.

Take twenty grains of pulverized opium, ten of pulverized extract of hyoscyamus, and twenty grains of camphor. Incorporate in melted cocoa-nut butter sufficient quantity, and divide into fifteen suppositories. Insert one every half hour in acute *gastritis, peritonitis, and metritis.* Extremely valuable when the stomach rejects everything. The same could be made, and conium introduced, instead of the hyoscyamus.

Ergotine.

Take twenty grains of ergotine, ten of opium, and thirty of iodide of potass. Incorporate in cocoanut butter a sufficient quantity, and make into twenty suppositories. Use one three times a day. *Very valuable to absorb uterine fibroids.*

Lobelia and Belladonna.

Take five grains of the solid extract of belladonna; twenty grains, by weight, of the oleo resin of lobelia. Add to a sufficient quantity of cocoa-nut butter to make fifteen suppositories. Insert one every hour in rigidity of the os uteri. *Invaluable.*

UTERINE REMEDIES.

There are a certain class of remedies that act upon the lower portion of the spinal cord, and the organs contained in the pelvis, more especially the uterus. For example, the infusion, oil, and even the water of fennel seeds, contract the broad ligaments of the womb, and is very useful in falling of that organ. Then, again, senecio, helonias, bethroot, high-cranberry, viburnum, cohosh, etc., increase the vital activity of the uterus, and promote a healthy uterine action; betin, cotton root, borax, sabina, cause a determination of blood to that organ; quinine, capsicum, mistletoe, corn smut, ergot, act as stimulants to the uterus; whereas all the acro-narcotics, such as belladonna, stramonium, are withering sedatives to this very vital organ, and so, also, with bromide of potassa; so that in this region we have, as it were, a special class of remedies to deal with.

Viburnum Compound.

Tak one ounce of pulverized black haw; one of helonias; one of bethroot; add them to a pint of sherry wine; let them steep about two weeks, then use. Dose, from one to two table-spoonfuls thrice daily. A decided uterine tonic and alterative. It is a preventative to threatened miscarriage; relieves after-pains, or uterine cramp.

Viburnum, Valerian, Etc.

Take of pulverized black haw, burdock seeds, valerian, skunk cabbage, skullcap, capsicum, of each half an ounce. Macerate in half a pint of Holland gin for a week. Dose, a small tea-spoonful, as indicated, in uterine pain of a neuralgic character. Or,

Take an ounce each, of pulverized cramp bark, skunk cabbage, skullcap, and half an ounce of capsicum to one pint of sherry wine. Dose, same as the above, and for the same affection.

Wine of Partridgeberry.

Take one ounce of crushed partridgeberry, helonias, high

cranberry, blue cohosh, and senecio. Add them to one quart of sherry wine. Macerate for about one month, then filter. Dose, one to two tablespoonfuls before meals. *Good uterine invigorator.*

Mother's Cordial.

Take four ounces of starwort; four ounces of high cranberry; four ounces of blue cohosh; and one pound of partridgeberry. Grind them all together, and cover them with strong alcohol for two weeks. Then add three pints of alcohol, and strain off the same; which set aside. Then boil the ground mass with two quarts of water, so as to extract all its properties, and boil down to two pints, then strain. Add to this watery extract two pounds of sugar, and evaporate to five pints. When cool, add the three pints of tincture first obtained. Flavor with oil of sassafras. Dose, from one to two teaspoonfuls every three hours in uterine weakness.

VERMIFUGE, OR WORM REMEDIES.

In the alimentary canal of man there are some thirty-four different kinds of worms found; but they can be reduced to three classes for the purpose of treatment, or for the operation of a class of remedies called vermifuges, which either narcotize, paralyze, poison, or destroy them mechanically. The ascarides, in the rectum and colon; the lumbricoides, in the small intestine; and tænia solium, or tapeworm, occupying a part of the thirty-two feet of the bowel.

For the Expulsion of the Seat-Worm.

Use an enemata, morning and night, of any bitter infusion, as quassia, or golden seal, or gentian, or even cold water, and internally some tonic, as cinchona.

For the Lumbricoides, or Round Worm,

Santonine is the remedy. Select that which is of a pure white color; never use the yellow, as it is inert; air and light decompose it, so keep it covered. It is incompatible with all other remedies, must be given alone, or in white of egg, in lozenges, or rubbed up in sugar. Warm water dissolves it; it is tasteless. Must not be given to American children in large doses, as it tends to irritate the brain, cause color-blindness, convulsions, death. Children of parents of low civilization bear it well, and can take doses of four or five grains; but one grain every night at bed-time, or every other night, is a sufficient dose for any of our children. It should be followed in the morning with some agent to move the bowels, as the cascara, or neutralizing mixture, or oil.

For the Tape Worm.

The infusions of kameela, male fern, kousoo, pomegranate

root bark, pumpkin seeds, are all useful, but unreliable. We prepare an active principle from their oils and extracts by ozone, which never fails, and is the best remedy ever used, as it is unfailing in its efficacy, always brings the worm, and that is valdevine.

MINERAL-WATER BATHS.

Mineral-water baths have been in use since the earliest ages, and they have existed in all parts of the world, in public and private places, chiefly near wells or springs which are believed to possess healing properties. Like many other important remedies, their virtues have been regarded with superstition at one time, and at another with blind empiricism. The physician of the present day is keenly alive to the utility of bathing, in all diseases, especially with medicated agents; he duly appreciates their value, their therapeutic power, in aiding the vital forces to recovery in disease.

A mineral-water bath is merely one of nature's chemical compounds—a complicated, natural medicine, containing various salts and gases blended together. The different ingredients are generally derived from the soil or rocks through which the water passes; and they consist chiefly of chloride of sodium, sulphate and carbonate of soda, sulphate and carbonate of magnesium, some salt of iron, bromine, iodine, chlorine, organic matter, and more or less of free gases, sulphuretted hydrogen, carbonic acid, nitrogen, oxygen, ozone. The organic matter usually consists of metallic salts. Such waters are sometimes met with cold, in other cases hot, and the cause of their existing in a hot state may be due to the internal heat of the globe, or to electricity generated in their formation, or to volcanic agency; or perhaps, in the larger proportion, to chemical change that takes place in them. There are numerous hot or boiling springs, as those in Arkansas, the Yellow Stone Valley, in New Mexico, the Geysers or hot springs of Iceland, and many others celebrated for their rare medicinal property; but, as a rule, mineral-waters are mostly met with cold, or slightly increased in temperature.

Mineral-waters are used both internally and applied externally. Their internal administration is chiefly for the purpose of increasing the activity of the depurating or eliminating organs, hastening and promoting digestion, stimulating the liver and bowels, destroying disease germinal matter in the blood, dissolving calculi, discussing or absorbing tumors, cleansing and vitalizing the cobwebbed brain, diluting and purifying the blood, increasing secretion and excretion, and eliminating morbid matter from the blood. They all stimulate the cutaneous and visceral circulation, and cause a rejuvenation of the

entire body. Their special effect will depend on their chemical composition, and some little on their locality, nature of climate, temperature, etc., etc.

Mineral-waters are best adapted for the cure of chronic diseases; hence the class of patients that are likely to derive most benefit are those affected with skin affections, tubercular, cancerous, and syphilitic diseases in all their varied forms; tumors, ulcers, rickets, stiff joints, gout, rheumatism, sciatic, neuralgia; liver and kidney diseases; inertia of the bowels, especially the colon and rectum; old cases of paralysis; Bright's disease; mercurial contamination; anæmia of brain and cord, as hysteria, hypochondriasis, epilepsy, chorea, mania; diseases of the generative organs of both sexes, as impotency, sterility; all disorders of the uterus, as displacements, tumors, leucorrhœa; and those incidental to the male, dropsies, etc.

Cases of acute disease, in the vicinity of those springs, are sometimes treated with the waters by sponging, and otherwise. But very great care should be exercised in their use, especially in the young or aged, so that their chemical composition be not contra-indicated in the disease.

For the cure of obstinate chronic disease, cases beyond the reach of ordinary remedies, they can be used at all seasons of the year, and in all cases they should be persevered with for several months, and in some cases for years; usually a few weeks afford a remarkable amelioration. Still, it is best not to expect much for some time; and the patient should be cautioned against the popular error, that the more frequent and longer they are used, the more speedy the recovery; this is not the case. The best plan is to follow the advice of some old, experienced physician in their neighborhood. It is not our province to advertise the waters of Saratoga, Bedford, West Virginia, Arkansas, California, or Mexico; but we would, in order to exhibit their great value, solicit attention to the most obscure, unknown spring in the United States or Canadas—namely, the sulphur springs of Mount Clements, Michigan, a little town surrounded by wooded hills, four hundred and fifty feet above the level of the sea, on Lake St. Clair, twenty-two miles from Detroit.

The springs here are of inestimable value. Their waters are of the sulphurous kind, and have the odor of rotten eggs, owing to their very heavy impregnation with sulphuretted hydrogen gas, each gallon containing twenty-five cubic inches, with heavy quantities of calcium, potassa, sodium, magnesia, iodine, bromine. The waters are very sparkling, owing to the large amount of carbonic acid gas they contain. They are highly vitalized.

These properties in the waters give them a remarkable therapeutic action. They render them great scavengers of diseased

blood, because the different agents are in great abundance through them, and of the most active description. Indeed, the waters are so highly charged with those invaluable remedials, that they are incapable of holding them, and as a result the atmosphere of the entire town is saturated with their properties. This dissemination renders the town a desirable residence for invalids, without ever drinking the water or taking a bath.

The Clysmic natural mineral spring water of Waukesha, Wisconsin, and those of Virginia, are unexcelled in their remedial power, being much superior in their medicinal properties to any in Europe. They are indispensable adjuvants in the cure of Bright's disease, diabetes, inflammation of the bladder or kidneys, catarrh of the bladder, congestion of the kidneys.

For nearly a century the cold and thermal springs of Virginia have been favorably known, but of late years their merits have been fully developed. Owing to the great amount of iodine and bromine with which the waters are impregnated, they are held in very high esteem by invalids, especially those suffering from chronic disease. Analysis of these waters, made by Prof. W. Clayton, M. D., of Newark, West Virginia, one of the best analytical chemists of the country, demonstrates conclusively that in wealth of medicinal matter they far surpass any of the other regions of the country; containing every ingredient found in other springs, in a much larger amount, and more heavily impregnated with the iodine, bromine salts.

They are unsurpassed, either in this country or Europe, for all classes of invalids; besides, the hotel facilities and comforts in those Virginia resorts are superb, and the accommodations for bathing are excellent, there being good douche, shower, vapor, reclining, swimming, and chair baths. By means of the latter, worked with a crane, a helpless invalid is lowered into and raised from the water.

The baths are used every day, or every other day, never near, nor after a meal, and the patient remains in them fifteen, thirty, or forty-five minutes, and are usually followed by shampooing or massage, according to the disease.

It will be readily perceived from the chemical composition of the waters that they have a remarkable bracing effect on the nerve-centres, stimulating the powers of life to increased activity.

In disease of the skin, tubercle, cancer, syphilis, mercurial disease, they act with wonderful power in getting rid of morbid matter, aid in the elimination of carbolic acid gas by the lungs, and skin, as well as of urea and uric acid by the kidneys.

They are very useful in gout, rheumatism, plethora, paralysis, germ diseases, and the arrest and formation of lactic and butyric fermentation, and the development of lithiate of soda. As the

waters are alterative, aperient, antiseptic, and stimulant, those that are suffering from liver disease, bowel torpor, and enlargement, induration of glands, lupoid ulcers, and all skin affections, are cured. They also prove very valuable in uterine disease, remove inflammatory affections, rectify displacements, correct derangements of the menstrual functions. Cases could be cited in which they have promoted the absorption of large fibroid tumors of the uterus and ovaries, as well as of the mammary gland.

Those waters are invaluable in all chronic diseases, impart new life to the nerves, sooth muscular and neuralgic pains, remove torpor of any organ, tranquilize the nervous system, improve digestion, stamp out dyspepsia, stimulate the circulation, relieve bronchial affections. The above and numerous other complaints that medicine fails to reach, can be cured by the mineral waters of one of the most unpretending and unknown springs in the United States, where thousands of invalids are annually cured.

TONICS.

Tonics are medicines that produce gentle and permanent increase of vital force. They are indicated in all cases of debility. They invigorate by increasing the energy of the stomach, by promoting an appetite, improving digestion, stimulating the circulation, and by their bracing action upon the whole body. They are either pure bitters, aromatic, or mineral agents, and in some cases have a definite action upon special parts of the organism.

Quinine, Hydrastin, Iron by Hydrogen, Nux.

Take thirty grains of sulphate of quinine; thirty grains of sulphate of hydrastin; thirty grains of iron by hydrogen; and eight grains of the extract of nux vomica: mix. Make thirty pills. Dose, two every three hours. *Very serviceable in anæmia from debility, incipient paralysis, or any condition of debility.*

Iron Acetic Tincture.

Take one pound of small lath nails, and cover with cider vinegar; let them steep two weeks, and then filter. Or steel scraps, or filings, may be used. This makes the acetic tincture of iron superior to dialyzed iron. Dose, from half a teaspoonful to a teaspoonful in a wineglassful of water. *In anæmia, chlorosis, suppression of the menses, want of appetite, and debility.*

Muriated Tincture of Iron

Is made by putting scraps of iron or steel into dilute muriatic acid. It is given in small doses, ten to fifteen drops, in water thrice daily, but is not near so efficacious as the acetic tincture of iron.

Phosphorus.

A constituent of the brain and bone of the body of animals. Is used in medicine as a tonic, in the form of water, infusion, tincture; mixed in mutton suet, made into pills; in oil and other forms—all probably more injurious than beneficial to the human body, causing fatty degeneration of the heart. The dilute acid, the glycerite of kephaline, and the hypophosphites of soda and lime being free from that abnoxious property.

Dilute Phosphoric Acid.

Ten to fifteen drops in a little water after meals. *A good brain tonic.*

Glycerite of Kephaline.

Ten to fifteen drops in a little water after meals. *The only true brain food, vitalizing tonic; increases vigor; restores the bouyancy of youth; increases the mental power.* (See *Ozonized Kephaline.*)

Glycerite of Ozone.

Fifteen to thirty drops; still more powerful tonic. (See *Ozonized Remedies.*)

Cinchona and Phosphoric Acid.

Take two ounces of the compound tincture of cinchona; two ounces of glycerine; dilute phosphoric acid, half an ounce: mix. A teaspoonful after meals in a little water. *A good tonic.*

Tonic Wine.

Take of freshly pulverized comfrey root; Solomon's seal; helonias root; chammomile flowers; columbo root; gentian root; coriander seed; and sassafras bark, one ounce of each. Add the whole to one quart of good sherry, and let them steep one month; then strain. Dose from a teaspoonful up to a table-spoonful before meals. *An excellent tonic.*

After the removal of the first, if the properties are not sufficiently extracted, a pint more sherry could be added and strained off, which is not so strong as the first. This preparation from the crude articles is much superior to any prepared from fluid extracts.

Brandy and Iron.

Take one pint of brandy, to which add thirty grains of quinine, one ounce of golden seal, and half an ounce of the phosphate of iron: mix. Shake well, and take two tablespoonfuls before meals. A good tonic to create an appetite, and aid in blood formation.

A Simple Tonic.

Quassia chips, subjected to infusion in cold water, is an excellent bitter tonic where there is debility and loss of tone in the stomach. A hot decoction of quassia, well sweetened, acts as

a narcotic, and is very destructive to flies, and much safer than the ordinary fly-papers.

Stomachic Tonic.

Pare off the yellow rind of six large oranges, and cut them up fine, and put into a quart bottle, with one ounce of gentian root, and one of golden seal, crushed. Pour over these ingredients a pint of brandy; shake the bottle well that and every day for seven days. Then let it settle for two days, and pour off carefully into another bottle for use. Take one or two teaspoonfuls of it in a glass of wine, or in a cup of tea, before meals. This is an elegant preparation, and a most valuable tonic.

Infusion of Columbo, or Collinsonia.

Take columbo and collinsonia, of each a heaped teaspoonful; boiling water, half a pint; macerate on the stove for four hours, and strain. It is improved by the addition of two tablespoonfuls of cinnamon, especially if it is for a case of diarrhoea. This is an excellent tonic, and will often allay the nausea and vomiting incidental to pregnancy. Dose, a small wineglassful three times a day, or more frequent.

Cure for Ague,

Take two ounces of Peruvian bark; wild cherry bark, two ounces; pulverized cinnamon and cloves, one ounce of each; capsicum, one heaped teaspoonful; sulphur, two ounces; port wine, two quarts. Let it stand a few days. Purchase the Peruvian bark solid; and if you cannot pulverize it, see the druggist does it in your presence, as it is an expensive article, and nearly all the powder in the market is adulterated. Dose, a wineglassful every two or three hours. It should be well shaken before using. *It is an infallible cure for ague. It destroys the malarial germ in the blood.* It need not be taken over twice a day when the chill is broken.

Nitromuriatic Acid.

Take two drachms dilute nitric acid, and add to it four ounces of water. A teaspoonful half an hour before meals in a little water. A good tonic when the liver is at fault.

Aromatic Sulphuric Acid.

Aromatic sulphuric acid, one ounce; add to four ounces of syrup of orange-peel, and four ounces of water: mix. Dose, a tablespoonful in a glass of water before meals. *A good tonic in dyspepsia.*

White Mustard Seed.

This is one of the most valuable of all remedies in indiges-

tion, debility, chronic inflammation of liver, torpid liver, sluggish bowels, heartburn, pain in the pit of the stomach, cramp, loss of appetite, failure to sleep, weakness of the nerves, or nervous depression. Very useful in female derangements. It is of special utility in habitual drunkards whose stomach coats are destroyed by the whisky. *The seeds should be taken whole, never crushed or bruised, in doses of from one to two teaspoonfuls one hour before meals in water, gruel, or mucilage.* The dose to be regulated by the activity of the bowels, one or two motions per day. When the seeds reach the stomach and bowels, they exude a peculiar principle, which rouses into vital activity the secretions of the stomach, liver, pancreas. This exudation is wonderfully tonic; the seeds give it out, and fail to be digested. Besides their special indication in the above diseases, they are also of great value in paralysis, ague, asthma, worms, all disorders of liver, and the infirmities of declining life.

Cinchona Compound.

Compound tincture of cinchona in teaspoonful doses in a little water, before meals. *Is a valuable tonic in all conditions of debility and want of appetite.*

Cinchona Compound and Aromatic Sulphuric Acid.

Take four ounces of compound tincture of cinchona; one ounce of aromatic sulphuric acid: mix. One teaspoonful in a glass of water before meals. *Useful as a tonic in dyspepsia, general debility, anæmia, Bright's disease, wherever a vitalizing remedy is indicated.*

Cinchona Compound and Nitromuriatic Acid.

Take two ounces of compound tincture of cinchona; two ounces of simple syrup; two drachms of nitro-muriatic acid: mix. One teaspoonful half an hour before meals in a glass of water. *Invaluable in all forms of dyspepsia; very efficacious in all forms of torpid liver, chronic inflammation, jaundice; in uterine hæmorrhage, anæmia, debility.*

Cinchona Compound and Compound Tincture of Myrrh.

Take four ounces of the compound tincture of cinchona; one ounce of the compound tincture of myrrh; half an ounce of common salt: mix. One teaspoonful every three hours highly diluted with water. (Shake before pouring out.) *Good as a tonic; very stimulating, and will break up some mild cases of ague.*

Cinchona and Valerianate of Ammonia.

Take two ounces of compound tincture of cinchona; two ounces of the ammoniated tincture of valerian: mix. Dose, a teaspoonful every three or four hours, highly diluted in water. *In cases of great debility, prostration, nervous excitement, hysteria.*

Peruvian Bark and Port Wine.

Take one ounce of freshly pulverized Peruvian bark, and one pint of good old port wine. Mix them together, and allow the bark to steep in the wine. As soon as it is settled completely begin its use in from one to two or three tablespoonfuls before meals. *A fine tonic; useful in general debility, and especially at the change of life. Its addition to the wine forms a tannate of cinchona, which renders it especially valuable to ladies.*

Peruvian Bark, Port Wine, and Acid.

Take the same as the above, and add one ounce of aromatic sulphuric acid. Same dose as above. *Particularly valuable when hæmorrhage takes place at the change of life. Give in ice-water.*

Quinine and Aromatic Sulphuric Acid.

Take one ounce of aromatic sulphuric acid; twenty or thirty grains of sulphate of quinine: mix. Dose, fifteen drops in a wineglassful of water half an hour before meals. *Good as a general tonic; but increase the dose of the quinine, and we have a valuable remedy for all fevers, especially the malarial. Splendid for night-sweats.*

Quinine, Aromatic Sulphuric Acid, and Syrup.

Take four ounces of wild cherry syrup and add to it a drachm of aromatic sulphuric acid and thirty grains of sulphate of quinine. Dissolve the quinine in the aromatic sulphuric, and add to the syrup. The object in view being to disguise the bitter taste of the quinine. Some use syrup of roses, and others. *Good tonic, efficacious in mild cases of ague among children.*

Cinchona, Phosphoric Acid, and Syrup.

Take two ounces of compound tincture of cinchona; three ounces of the syrup of orange peel; half an ounce, or a whole ounce of dilute phosphoric acid: mix. Dose, a teaspoonful after meals in a little water. *In debility, with nervous shock.*

Other Tonics.

Tincture of gentian, of columba, of collinsonia, are excellent bitter tonics in teaspoonful doses before meals. In debility, dyspepsia, want of appetite.

Golden Seal. or Hydrastis.

Water is the best agent to extract its properties. Make a decoction, say two heaped teaspoonfuls to a half pint of water. Dose, one to two tablespoonfuls, half an hour before meals.

The infusion keeps well if thirty drops of chloroform is added to the half pint. *In dyspepsia, with sluggish liver.*

Hydrastis, or Golden Seal, Quassia, and Gentian.

One ounce of hydrastis, one ounce of gentian, and two of

quassia chips: mix. Pour three quarters of a pint of boiling water on the whole, so as to give a half pint clear. Preserve by adding thirty drops of chloroform. Dose, one or two tablespoonfuls before meals. *A good bitter tonic.*

Gentian and Nux Vomica.

Take two ounces of the fluid extract of gentian; two ounces of the fluid extract of golden seal; and one ounce of the tincture of nux vomica: mix. Dose, half a teaspoonful added to a little water, half an hour before meals. *Excellent in all forms of indigestion and constipation; also efficacious in piles.*

Columbo.

Take one ounce of fluid extract of columbo; the same quantity of dogwood; the same of golden thread; the same of stone root and bayberry: mix. Dose, from half to one teaspoonful before meals, in water. *Very efficacious tonic in all forms of weakness of the bowels; of great utility in chronic diarrhœa.*

Lettuce.

Take one ounce of the fluid extract of lettuce; the same quantity of lupuline; the same of prickly ash and wild cherry: mix. Dose, one teaspoonful every four hours in water. *Of great utility in nervous dyspepsia, especially if there is great restlessness and irritability.*

Fringe Tree.

Take one ounce of fringe tree bark; one ounce of dogwood; one ounce of elecampane; two ounces of American columbo; mix. Crush into a powder, and then add two quarts of sherry wine. Let it steep two weeks. Dose, a wineglassful half an hour before meals. *Invaluable in dyspepsia, constipation, and chronic irritation of the liver.*

Agrimony.

Take one ounce of the fluid extract of agrimony; bitter root; Solomon seal; querbacho bark: mix. Dose, from ten to thirty drops every four hours in warm water. *Of great efficacy in dyspepsia, complicated with difficulty of breathing.*

Golden Seal.

Take one pint of brandy; one ounce of pulverized golden seal; one ounce of phosphate of iron: mix. Shake well before taking. Dose, one to two tablespoonfuls before meals. *Of great efficacy as a fertilizing blood tonic. Useful in anæmia.*

Life Root.

Take four ounces of the fluid extract of life root; one ounce of the tincture of nux vomica; the same of damiana; and half

an ounce of tincture of cantharides: mix. Dose, one teaspoonful every two hours. *Very useful in lethargy of the sexual organs.*

Bayberry.

Take four ounces of the fluid extract of bayberry; one ounce of fluid extract of cascarilla; and one ounce of fluid extract of dogwood: mix. Dose, a teaspoonful every three hours in cinnamon-water. *Very useful in diarrhœa and relaxation of the bowels.*

Kidney Tonic.

Take one ounce each of the fluid extract of cleavers, queen of the meadow, coltsfoot, bucha, and uva ursi: mix. Dose, one teaspoonful every three hours. *Very efficacious as a tonic to the kidneys, catarrh of the bladder.* Valuable as astringent, diuretic.

Bowel Tonic.

Take crude bayberry, pulverized, one ounce; poplar bark, ditto; raspberry leaves, half an ounce: mix. Infuse in a pint of boiling water, and evaporate down to half a pint; cool. A wineglassful every three hours. The efficacy of the above is greatly increased by the addition of cinnamon and capsicum to suit the taste. *Of great utility as a drink in or after typhoid fever, where the bowels are weak.*

Beef, Iron, and Coca.

The express juice of raw beef, one ounce; thirty grains of phosphate of iron; and twenty to thirty drops of coca. Erythroxylon coca in combination with beef and iron is extensively prescribed in convalescence from exhausting fevers, debility, overwork—both mental and physical—and in all cases where a strengthening and restorative remedy is required. In the treatment of impaired nutrition, impoverishment of the blood, and in all the various forms of general debility, its value is recognized by the practitioner. The above quantity for a dose every four hours.

Beef and Acid.

Beef chopped fine, half a pound; a teacupful of water, acidulated with muriatic acid: mix together; in five minutes strain off, and take at a dose. Repeat every three hours. *Excellent in debility and anæmia.*

Vallet's Mass.

Take one ounce of Vallet's mass; mix thoroughly in it one drachm (sixty grains) of extract of nux vomica. Take a piece about the size of a pea or kidney bean, once, twice, or thrice daily. *Very valuable in constipation from pure debility, chlorosis, etc.*

CLIMATE FOR INVALIDS.

It has been clearly demonstrated that sameness, monotony, isolation, confinement deteriorates and obliterates the cerebral convolutions of thought and reason, and reduces man to the level of an animal, whereas change of scene, air, surroundings, climate, diet and habits are most conducive to a higher state of mental and physical existence. The vitalizing effect of change is taken advantage of as a remedial agent, but though invaluable in itself, it should not be resorted to without due care, judgment and discretion, and a correct knowledge of all its bearings upon the precise status of health. It is not well for patients to migrate and simply find a grave, which is too often the case when the advice of an experienced physician is disregarded as to the selection of a proper place, or the advanced nature of the disease. All chronic diseases, if the situation is favorable are benefited, alleviated, or cured by a change of air, scene, climate, but especially diseases of the brain, lungs, heart, digestion, gout and rheumatism, functional disorders of the sexual system. Diseases of the kidneys, which are so prevalent, are not only ameliorated but cured by change of climate. A change is of great utility in all blood diseases, especially in tuberculosis, cancer, syphilis, skin, change of life, chronic disease, especially when tardy at recovery. Even hopeless, or what are termed incurable affections are benefitted by change, as it imparts mental exhilaration, increases vital force, promotes good digestion and sound sleep.

There is no model climate for all diseases, no State or portion of State can boast of being perfect in its tellural, atmospheric and climatic condition. California presents a most remarkable exception to all our States, and to every country in the world in being the most salubrious, genial and bracing climate under the sun all the year round, and is a most benign climate for all diseases, but withal Florida for six months every year surpasses it in its vivifying, vitalizing, curative properties in lung diseases. In both those States we possess an unchangeable, everlasting spring; an air to breathe rich in ozone; a climate never warm nor cold; a celestial salubrity, with every fruit and vegetable in the known world perpetually in season.

Consumption of the lungs is the most prevalent and fatal of all diseases in our country, and for this both California and Florida offer an unexcelled climate; the former is dry, the latter moist. The location to be selected that has the best advantages, is the lower portion of California and the upper portion of Florida, embracing a point from Jacksonville to the extreme southern boundary of Orange and Sumpter counties. The aspect, drainage, elevation above the sea level, the temperature, equability, dryness and moistures, luxuriant vegetation and entire absence

from decaying vegetable matter, render this the chosen spot of all others on the American continent for sufferers with laryngitis, bronchitis, asthma, emphysema, and consumption of the lungs; perhaps the only spot in the known world where the latter disease is perfectly arrested. The beneficial effects of the climate of California, and that portion of Florida mentioned, are due to a variety of causes, as the extreme purity of the atmosphere, the evenness or sameness of temperature. This is chiefly caused by the sea air being constantly wafted over the peninsula, and to the presence of an even amount of ozone in it. This same condition is further enhanced by the species of vegetation, which is chiefly of an ozone-yielding kind. Ozone is the important constituent of the atmosphere of those States. This allotropic condition of oxygen possesses great power in the destruction of all disease-germs in the air. Florida undoubtedly derives much of it from the sea breezes wafted over it; California, from her mountains, her flora, her trees. But there is no location in either State but what is freely supplied with this vitalizing agent; there it exists in the air of marshes, in aquatic plants; the balsamic odors of trees and flowers convert the oxygen of the air into ozone. It is not necessary to hunt up the balsamic odors of pines, when every tree yields it in perfection. The atmosphere of Colorado is very rarified, and well adapted for diseases of the heart, asthma, and emphysema, but its ozone is very variable at certain seasons and in different localities. The ozone is the great scavenger of nature, and of diseased or impure blood; a stimulant to the vital functions of the body, a true vitalizing agent. Its own properties are of intrinsic value, but its combination with the aroma of trees and plants of an ozone-yielding faculty, render the air very invigorating. In California, there is, in addition to the sea-air ozone, that derived from mountains, which is freely liberated; besides, the atmosphere from the mountain tops is very pure, and may be greatly rarified, but still from its constant changes contains an unlimited amount of the purest ozone. In addition to this excess of ozone in the climate of Florida, its atmosphere being renewed daily from the sea, contains iodine and bromine in great abundance, enough to destroy all the diseased germs of tubercle, cancer, and syphilis in the whole world. Besides, its moisture tends to diminish positive oxygen, which is so injurious to weak lungs, and which is one of the most prevalent causes of tuberculosis in the Eastern States. On the elevations of Orange and Sumpter counties there is a considerable diminution of atmospheric pressure, and the air, very tonic and bracing, promotes an appetite, aids in the elaboration of good, pure blood.

In the United States we have every variety of climate to select from, so as to suit the nature of the disease;

A Bracing Climate.—We have it in Florida and California. In the former, during the six winter months; in the latter, during the entire year, with air full of ozone, well suited to pulmonary consumption.

An exciting climate is to be found in the New England States, Michigan, Minnesota; a highly electric state of the atmosphere, abundance of ozone, but very cold in winter.

A sedative atmosphere is to be found in North Carolina, Georgia, Alabama; a relaxing climate in Louisiana, Texas, Mexico.

The death-rate of native born residents of the different States and localities cannot be very accurately ascertained, but the following is an approximate table of the deaths of native to the one thousand:

In California and Florida, . . .	the death-rate is 16 to 1000.
" Oregon and Washington Ter.,	" " 20 "
" Georgia and North Carolina,	" " 20 "
" St. Paul's, Minnesota,	" " 24 "
" New England,	" " 27 "
" Michigan, Canada, Ohio,	" " 33 "
" Baltimore, Md., and Virginia,	" " 38 "
" New York,	" " 40 "
" Philadelphia, Pa.,	" " 49 "

The air of the New England States in summer is very bracing and tonic; the atmosphere is pure, the soil dry, water good. All diseases of the nervous system are much benefited by its invigorating action, especially if the vital powers are sluggish. The air in winter is biting cold, neither genial nor mild, but yet salubrious, and is favorable for longevity, as well as for the development of the mental and physical powers. In some of the older towns where the stock is pure, the longevity is remarkable, persons from eighty to ninety being seen in the streets in full possession of all their faculties. The mental culture is very high and diffused, the brain calibre great.

Long Island, Long Branch, Atlantic City, Cape May, are more suitable for summer visitors requiring change of air and occupation, than for invalids who need quietness and repose, in addition to a bracing atmosphere. The air is tonic and invigorating; the winter climate more equable and agreeable.

New York, Pennsylvania, Delaware, Virginia, are bad for consumption, the atmosphere being subjected to sudden vicissitudes of change. It is very destructive in catarrhal, bronchial, lung, and pleuritic affections, besides being prolific in cancer, cutaneous, and diseases of the generative organs.

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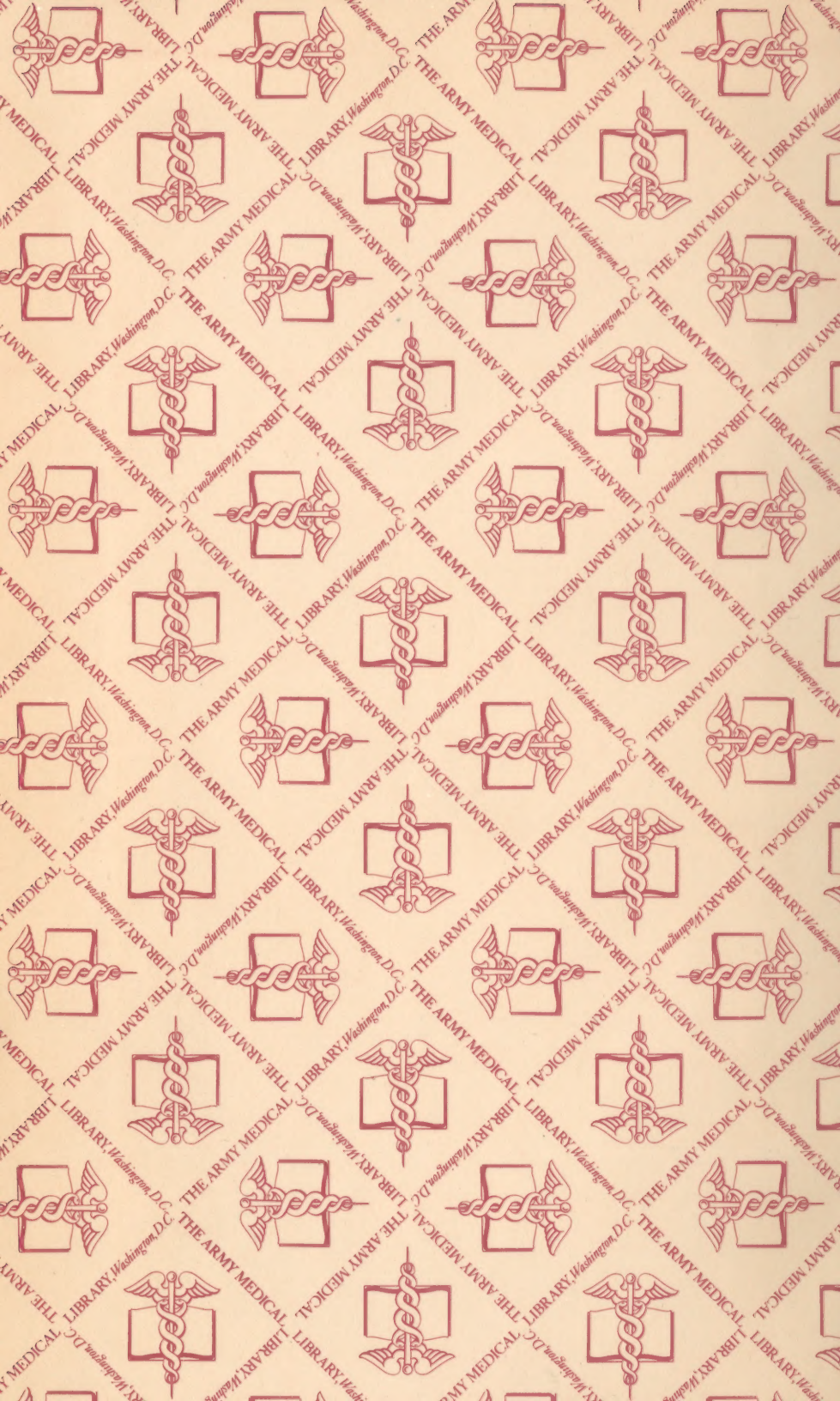
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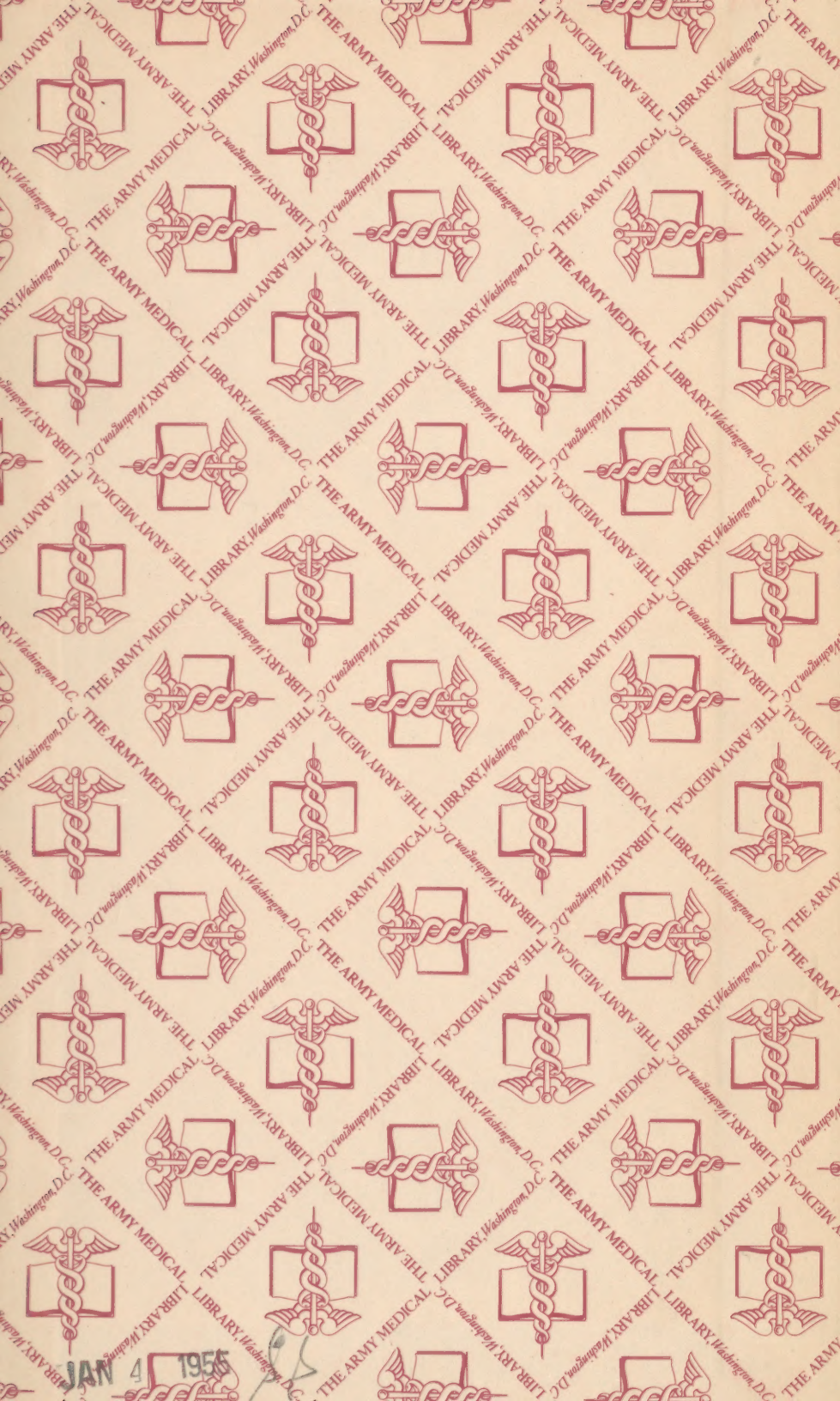
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